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Educational News and Editorial Comment

MATHEMATICS IN THE HIGH SCHOOL

There is much current discussion and action in the field of high-school mathematics. The outstanding reason for this general movement is that school administrators and school patrons have come to the conclusion that algebra and geometry as traditionally taught in the high schools are intolerable failures. In the early years of American high schools, when a small group of highly selected pupils attended these institutions for the purpose of preparing themselves for the learned professions, subjects were adopted into the curriculum for reasons that are no longer acceptable. One need not quarrel with the high-school programs of 1880 or even of 1890. They served the purposes of their times fairly well. The difficulty is that teachers who became thoroughly intrenched at that time, and subjects which were required at that time, have remained static while the world of school organization and of civilization has moved on. Algebra and geometry suffer today because, in the form in which they appear in high schools, they are out of keeping with the legitimate demands of the times.

The Department of Education of the state of Ohio has ruled that an approved high school need not any longer require a unit

of mathematics. The official who speaks for the department in this matter makes the following statements:

> It is not the department's purpose to let down the bars on a formerly required subject simply because it is difficult, if it has universal value in the curriculum other than "disciplinary." On the other hand, it is not our purpose to hold any brief for a subject solely because it is difficult, with the idea that it is needed to "steel" the mind. The notion of "general discipline" and the old "faculty" psychology die hard in spite of the findings of all the best modern psychologists that ability acquired through the study of any particular subject does not spread itself and make for proficiency in various other subjects. . . . . Our aim is not painless pedagogy or sugar-coated curriculums, but we are sure it is wrong to retain a subject merely because it will provide opportunity for mental gymnastics.

To the claims of practical usefulness for mathematics, the department is similarly unsympathetic. That there are certain vocations, notably engineering, where a knowledge of mathematics is indispensable is admitted.

> This does not argue, however, that all young people should have mathematics because it will be a necessity for the few. It is not fair to impose a study upon a pupil on the contingency that he may some day utilize it in a practical way when the indications all point in the opposite direction. The exceptions that occur need not concern us half so much as the great body of young people who stumble along and drop out because they possess no aptitude for a subject such as mathematics, or such as Latin, which, like algebra, was once on the required list. Greek, too, knew the day when it was rated indispensable, but many have forgotten that it was ever taught in high schools.

The position assumed by the state department of Ohio has already been adopted in many individual high schools.

Furthermore, the reorganization of the mathematics courses of the junior high school has undoubtedly contributed to the decline of the rigid high-school requirement in its traditional form. Pupils in the seventh and eighth grades are being introduced to constructive geometry and to the elements of algebra to a degree which takes away almost all the justification which might otherwise have been urged for a retention of mathematics courses as an essential part of a general education.

Even where the formal junior high school organization has not been adopted, the introduction of algebra and geometry into the

grades is going on. As an example of this, one may cite the recent course of study in mathematics adopted by the Chicago Principals' Association, published in full in the September number of the *Chicago Schools Journal*. The introductory paragraphs of this report are as follows:

> During the seventh and eighth grades most pupils are ready for a wider application of their arithmetical computation, for other kinds of quantitative experience, for other mensurational concepts, and for the useful ways of representing quantitative data and relationships. They are ready to extend the type of arithmetic acquired in the first six grades to include applications in business practice within the needs of most adults. At the same time they are ready to extend their experience with linear measurement and to acquire the necessary concepts of surface, volume, and angular measurement to enable them through geometrical construction and computation to represent, express, and evaluate space relationships involved in mensuration. This is the time, too, when pupils are interested in studying the elementary graphical representations of simple quantitative data and relationships, a method of representation so universally used at present.
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> It is a common practice to express all mensurational rules and many other quantitative rules, after they have been developed and are understood, in the concise language of the formula, and to use the equations as an aid in thinking and solving certain types of problems. Elementary experience with the formula and the simple equation should be introduced and distributed below the ninth grade. This necessitates the introductory study of literal number, a few symbolic forms, and the operations required in evaluating simple formulas and solving simple equations.
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> It is therefore the aim in preparing this course in mathematics for the seventh and eighth grades to provide the opportunity (1) to apply computational arithmetic to the most useful phases of business practice and social applications, (2) to study space forms and relationships arising in linear, surface, volume, and angular measurements, (3) to study and to represent quantitative data and relationships by means of simple graphs, (4) to express quantitative relationships in the language of the formula and the equation and to evaluate and solve the same, (5) to study positive literal numbers and the necessary forms and operations to evaluate simple formulas and to solve simple equations, and (6) to practice at times on the fundamentals of computation until a norm of proficiency is acquired.

The most important indication, however, of genuine reorganization in mathematics is to be found in the activities of the National Committee on Mathematical Requirements, working under the auspices of the Mathematical Association of America.

The chairman of this committee, Professor Young, of Dartmouth, announces as follows in a September bulletin from the committee:

The National Committee on Mathematical Requirements on September 5 held its last meeting under its present form of organization. One phase of its work has come to an end. The manuscript of a summary of the final report of the committee has been sent to the United States Bureau of Education for publication. This summary, which will constitute a bulletin of some eighty pages, virtually presents the first part of the complete report. It contains the following chapters: "A Brief Survey of the Report," "Aims of Mathematical Instruction—General Principles," "Mathematics for Years Seven, Eight, and Nine," "Mathematics for Years Ten, Eleven, and Twelve," "College-Entrance Requirements in Mathematics," "List of Propositions in Plane and Solid Geometry," "The Function Concept in Elementary Mathematics," and "Terms and Symbols in Elementary Mathematics," and also a brief synopsis of the remaining chapters of the complete report. It is expected that this summary will appear late in November or early in December.

It was the original intention of the committee to publish its complete report also through the United States Bureau of Education. It was found, however, that this would involve a delay of two or three years in view of the fact that it would be necessary for the Bureau of Education to issue the report in parts extending over a considerable period of time. It is hoped at present that sufficient funds will be obtainable to print the report during the winter and to distribute it free of charge to all who are sufficiently interested to ask for it. The complete report will constitute a volume of about five hundred pages. In addition to the chapters listed in the summary, it will contain an account of a number of investigations instituted by the committee. Among these may be mentioned: "The Present Status of Disciplinary Values in Education," "A Critical Study of the Correlation Method Applied to Grades," "Mathematical Curricula in Foreign Countries," "Mathematics in Experimental Schools," "The Use of Mental Tests in the Teaching of Mathematics," and "The Training of Teachers of Mathematics." There will also be included an extensive bibliography on the teaching of mathematics.

In closing this phase of its work, the committee desires to extend its most cordial thanks to all the individuals and organizations that have helped. The response secured by the committee to its appeal for assistance in solving the many problems facing it has been extremely enthusiastic and gratifying. This leads the committee to look forward to the future optimistically. The real work for which the committee was appointed may be said to begin with the publication of its report rather than to end with it. Continued enthusiastic activity on the part of all individuals and organizations concerned with the teaching of mathematics is needed over a period of many years to put the recommendations of the committee into effect, to test their validity, and to

modify them in ways that experience shows to be desirable. In order to be of assistance in this direction, the committee hopes to be able to maintain an office with a certain amount of clerical help during the next few years so that it may continue to act as a clearing-house for ideas and to stimulate the discussion of problems relating to the teaching of mathematics among the nearly one hundred organizations that have in the past been actively co-operating with the committee.

The recommendations of the National Committee have been made the object of classroom presentation and discussion at a larger number of summer schools throughout the country this summer. Indeed, some of the most prominent institutions have built the work in mathematics intended for the preparation of teachers around the various preliminary reports of the National Committee.

Professor E. R. Hedrick of the University of Missouri lectured before a number of institutions in behalf of the National Committee from June 20 to August 9. The institutions visited were the University of Texas, the University of Ohlahoma, the University of Nebraska, the state normal schools at Peru and Kearney, Nebraska, the University of Chicago, the University of Iowa, Iowa State Teachers' College, the University of Michigan, and Northwestern University. Professor Hedrick was enthusiastically received at all of these institutions.

Professor Hedrick, in defending the work of the committee against the criticisms of some who have regarded its recommendations as too radical, makes vigorous statements which will be very welcome to those who are anxious to see the mathematics courses saved from their conservative friends. He says:

> Is, then, algebra and possibly a part of geometry to be abandoned? Far from it. Just as in the teaching of modern languages, when the old drill on conjugations and declensions and rules was swept away, its place was taken by a real study of the living language as such, as a mode of expression, as a living reality. I venture to say that the disciplinary value of language study has not suffered in the process. And I know that the students taught under the present methods know fully as much about the declensions and the rules a year after they leave the course as did the older students who studied only those rules and declensions.
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> Similarly in algebra and geometry, if we sweep aside some of the outworn topics accumulated when discipline was considered to be the entire purpose and aim, we have to substitute something of the real life of mathematics, some of the ways in which people actually use it.
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> It is a mistake to imagine that people will think accurately about affairs that concern them deeply without such training as that which is proposed. Mistakes concerning interest on money, mistakes on life insurance, mistakes

on estimated costs and values are as common as mistakes in science, due always to lack of training in functional thinking.

A very interesting book is Sir Oliver Lodge's *Easy Mathematics, Principally Arithmetic,* written by that great scientist in his prime, before he undertook the more occult studies in which he is now engaged. This is a book for adults. It deals with simple topics in a novel, interesting, and valuable way. In it, he refers to the common mistakes that people make in thinking of relations between quantities. Some of his illustrations, while crude, are striking. Thus he asks:

"If a camel can go six days after drinking twelve gallons of water, how much water would he have to drink to go for three months?"

He points out that many persons would thoughtlessly solve this problem by ordinary proportion. Or he asks:

"If a boy can slide ten feet on the ice with a running start of fifteen feet, how far can he slide with a running start of half a mile?"

Again: "If a horse can carry 300 pounds when standing on four legs, how much can he carry when standing on one leg?"

Such problems, while ridiculous, illustrate perfectly the commonplace nature of problems not solvable by proportion. The common errors made in such problems exist in very practical affairs. That they may become extremely serious is illustrated by the Quebec bridge disaster of a decade ago, when hundreds of human lives and $7,000,000 were lost, all because one man supposed that a girder twice as large as another would be twice as strong. A homely case of the same error has become almost proverbial in the statement that twice as much medicine does not give twice as much benefit to a sick man.

Between this homely case of doubling the dose of medicine and the awful case of the Quebec bridge disaster lie hosts of other relations between quantities in everyday life, in business, in science, in which it behooves us to think with care and accuracy. It is our business to see that our mathematical courses in secondary schools do give training in such thinking. If they do, as they have not in the past, they will be more worthy of recognition by real educators and of retention in school curricula.

TWO TYPES OF CHEMISTRY IN HIGH SCHOOLS

The Committee of Ten made in its day an emphatic pronouncement to the effect that any high-school subject that was to be offered to students should be taught in the same form to all who took that subject. It appears that this principle is now to be discussed once more.

The American Chemical Society has recently undertaken a vigorous campaign to persuade the American people of the importance of teaching the science which this society represents. It has

distributed books and articles intended to interest the layman and to show him the importance of chemistry in determining the progress of civilization. Emphasis has been laid in much of this literature on the possibility of showing that chemistry is of common interest to everybody whether he is a technical scientist or not.

As a part of this campaign the news service of this society sends out the following:

> Professor David Snedden, discussing at a recent meeting of the Section on Chemical Education of the American Chemical Society the subject "Desirable Aims of School and College Chemistry," contended that the time is ripe for differentiating two radically unlike types of courses, certainly in secondary schools, and probably in colleges.
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> The first type of course should have as its primary purpose "culture" in the sense of interests and appreciations. It should be designed primarily for those who will probably not encounter needs of giving application to chemical knowledge and technique except as utilizers.
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> The second type of course should be for those who expect later to apply in some sort of productive process their chemical knowledge and training. Courses of this character should, manifestly, be rigorous, exacting, and systematic.
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> But courses of the first type should be essentially *liberal*—that is, *liberating*. They should culminate in wide and varied appreciations, insights, and vital interests. The methods of instruction and training should assuredly not be rigorous and exacting in a sense appropriate to the other type of course. But liberal education here should not be confused, as it often is, with superficial, sloppy education. There are fine standards of amateur execution and appreciation, no less certainly than there are fine standards of professional performance.
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> Once differentiate the two types of courses here suggested, and it seems probable that the teaching of science will take on a new vitality.

The attitude of science teachers has in some cases been one of violent opposition to such proposals. It will be of interest to learn whether the chemists in general will favor the action of their news service in opening up this issue.

School administrators in general will welcome very heartily any move that will liberalize chemistry. Physics and chemistry, in much larger degree than the biological sciences, have stood aloof and have dealt in a thoroughly unsympathetic way with the problems of secondary education. These sciences have demanded that instruction be controlled and directed for their interests in a

very rigid fashion. Perhaps the American Chemical Society has reached the point where it will seriously discuss a new program.

CHARGES IMPOSED ON HIGH-SCHOOL STUDENTS

Seattle has found it necessary, as have other cities, to curtail at every possible point school expenditures. One expenditure which seemed relatively less essential than others was that for free textbooks and equipment. When, however, a proposal was made to cut down at this point, the results followed which are described in the following items taken from a local newspaper:

Effort of the Seattle school board to please taxpayers who demanded the abolition of what they termed educational fads and frills in the public schools promises to result in an appeal to the courts by other taxpayers to enjoin the board from carrying out its plan to compromise by collecting a small fee from high-school pupils taking certain studies that critics have placed in the "fad and frill" category. Such a suit was threatened when William W. Ballantyne, a printer, appeared before the school board last evening and challenged the right to assess the fees mentioned. Ballantyne left, threatening to bring suit on behalf of himself and other parents to enjoin the board from excluding from the high schools children whose parents refused to pay the new fees.

Ballantyne said he had a boy and girl in the Lincoln High School and that the children had been asked to pay fees that he had determined not to pay as a matter of principle, regarding the new rule as un-American and a denial of the right to free education. He was able to pay the fees, which range from 50 cents to $1 for each study a semester, he said, but he declared that he knew parents who were not able and whose children would be forced to drop useful studies or leave school because of that inability. The question was argued at length by Ballantyne and members of the board. Henry W. Pennock, the board's attorney, also participated. Ballantyne was told that the charges he objected to were not tuition fees, but charges for supplies and materials, but was not mollified. He said he would not object to a tuition fee, but did object to an arbitrary charge for materials that might or might not be used or needed.

Refusing to dissolve a temporary restraining order prohibiting the Seattle school board from charging small fees for supplies and materials used by students taking certain studies which one group of taxpayers termed "fads and frills," Presiding Judge Everett Smith of the Superior Court yesterday afternoon granted a motion in the suit of W. W. Ballantyne to make the restraining order a temporary injunction pending a hearing of the case on its merits.

The school board may now follow any one of three principal courses of action, following Judge Smith's decision, according to its attorney, Henry W. Pennock. The board may appeal to the State Supreme Court on the temporary injunction issued yesterday; it may permit the temporary injunction to stand and file an answer in the case allowing it to come regularly for trial in the local court, or it may drop the courses of study involved entirely from the high-school curriculum, which would be entirely within its power, according to Mr. Pennock.

"It is entirely a question of the future policy of the board," he said. "It may drop the case entirely, permitting the temporary injunction to stand."

Ballantyne's action was brought a week ago, when he asked for a temporary restraining order, asserting that his son and daughter, students at the Lincoln High School, would be dropped from the rolls unless they paid fees demanded for admissions into the woodwork, botany, home economics, and sewing classes. Ballantyne asserted that he had vainly protested to the board against the assessments and that he represented several other families whose children were similarly situated. Judge Smith granted him the temporary order and set yesterday for a show-cause hearing by the board.

Several witnesses were called by the board when Judge Smith interrupted the hearing with a request that attorneys confine the argument to the power of the board to take such action under the state law. The hearing was then continued to yesterday morning, when numerous authorities were read to the court by both sides.

Attorney W. D. Lane, representing Ballantyne, contended that the board was establishing a dangerous precedent in charging the fees, which might lead to the establishment of a "cafeteria" system of education in which the students would pay for what they received.

Attorney Pennock argued that the board was wholly within its rights conferred by the 1897 legislature. The school code, he argued, which authorized the district boards to furnish such supplies and materials as they deemed necessary, has not been changed by any later enactment.

Judge Smith in his decision held that the question of free textbooks and supplies had been voted upon favorably by the people of the district in 1897, although passed by only a small majority, and added that he did not believe public sentiment had changed since then. If it is thought that public sentiment has changed, the matter should again be submitted to the voters, he said.

Supplies, he said, are necessary materials used by the pupils in connection with their courses of study without distinction. He asserted that the school board should not discriminate by charging fees for any one or several kinds of supplies while others were furnished free.

The action of the board, the court held, is purely a revenue measure calculated to raise $40,000. Judge Smith stated that although he was sure the board was acting in an honest endeavor to reduce expenses during the present era of high taxation, its action is not good judgment and is arbitrary in that the assessment falls upon only a few of the students.

The court found that the fees charged were not based upon value received by the students who paid them, as all students taking the courses in which the fees were required paid a like amount despite the fact that one pupil might cause more breakage during a semester than others and might also use considerably more materials.

Judge Smith said that he recognized that it was not good policy for the courts to interfere with the free action and volition of the school board and that he did not wish to do so, having served in that body for two terms and understanding as he did the problems which confronted it.

Although the Superior Court is not ordinarily in session on Saturday afternoons, Judge Smith, because of his interest in the case, consented to hold a special afternoon hearing so that the matter might be concluded.

COMPULSORY TRAINING IN PATRIOTISM

The Superintendent of Public Instruction in Illinois has dealt in a recent bulletin with the difficult problem of carrying out the mandates of the state legislature on the matter of teaching patriotism. Mr. Blair's full statement is as follows:

No observing person has failed to note the increasing tendency on the part of the state to enforce state-wide legal requirements upon the public schools. Every session of the General Assembly finds its calendars loaded with bills requiring school directors and boards of education to do this or that, or to teach this or that. For many years administrative officers and the courts held that boards of directors were required to teach such subjects as were enumerated in the second-grade teacher's certificate. From time to time, however, the legislature has added to this list of required compulsory subjects. Some of these additions are as follows:

1. The effects of alcoholic beverages on the human system.
2. Humane education.
3. Physical education.
4. The teaching of all elementary subjects in the English language only.
5. The last one of these makes the teaching of representative government in the public schools and other educational institutions in the state of Illinois compulsory.

The law reads as follows:

"An act *to make the teaching of representative government in the public schools and other educational institutions in the state of Illinois compulsory.*

"SECTION 1. *Be it enacted by the people of the state of Illinois, represented in the General Assembly:* That American patriotism and the principles of representative government, as enunciated in the American Declaration of Independence, the Constitution of the United States of America, and the Constitution of the State of Illinois, shall, from and after the taking effect of

this act, be taught in all public schools of this state, and in all other educational institutions in this state supported or maintained, in whole or in part, by public funds.

"SEC. 2. That not less than one hour of each school week shall be devoted to the study of the said subjects mentioned in the first section of this act in the seventh and eighth grammar grades or their equivalent in the said public schools and other educational institutions, and that not less than one hour of each school week shall be devoted to the advanced study of the subject in all high-school grades in the said public schools and other institutions mentioned in the first section of this act. Provided, that nothing herein contained shall be construed to prevent the study of the said subjects in any of the lower grades in the said schools or other educational institutions aforesaid.

"SEC. 3. It is hereby made the duty of the State Superintendent of Public Instruction to put into effect the provisions of this act.

"Approved June 21, 1921."

It will be noted that the third section of this law makes it the duty of the Superintendent of Public Instruction to put into effect the provisions of this act. In compliance with this section, the Superintendent of Public Instruction has issued a circular letter to county superintendents, city superintendents, high-school principals, and school officers, calling their attention to the requirements of the law and making certain suggestions respecting the way in which the spirit and the letter of the law may be carried into effect with the least disturbance to the daily program. These suggestions are as follows:

That in the seventh and eighth grades one hour each week in the history or civil government classes shall be given to instruction in the subjects mentioned in this law. In those weeks which have some patriotic school or legal holiday, a program could be arranged with music and matter of such a character as would fully meet the requirements of the law for that week. In the high school the carrying out of the law is somewhat more difficult. Some high schools will find it possible to do the required work by having two general half-hour exercises each week for the consideration of the American Declaration of Independence, the Constitution of the United States, and the Constitution of the State of Illinois. Other high schools may find it more convenient and satisfactory to give the instruction to the students in one period and to have them take an examination or a quiz on the matter at another period.

It was the belief of most of the school men who were on the ground during the time the legislature was in session that the school programs already made ample provision for the teaching of everything which this law requires. Certain earnest and determined members of the General Assembly, while admitting that much was being done, felt the need of making a uniform requirement which would be met in a more or less uniform way throughout the state. In order that a school shall be counted as having been kept according to law, the requirements of this law must be met completely.

This statement illustrates the difficulty which a democracy encounters when legislators attempt to control directly matters that require the judgment and skill of technical experts. When one views the matter from this point of view, one is led to the conclusion that school people have a grievance against politicians.

On the other hand, the statement uncovers in a very vivid way the fact that many ordinary people do not believe that schools are giving adequate instruction in public affairs. Until schools correct the deficiency from within, bungling efforts to mend the situation will be made by those who do not know how to make school programs but are sure that school programs are wrong.

BOOKLET FOR TEACHERS OF CURRENT EVENTS

To help promote the teaching of current events, the educational department of the *Review of Reviews* has issued a thirty-two-page booklet entitled "How to Teach Current Events" for use by all history, civics, and current-events teachers.

The booklet contains a section on organizing subject-matter for current events; gives fifteen ways of handling a class in current events, together with the best time for teaching current events; and presents also suggestions for testing classes in this subject and a list of "Twelve Don'ts" that teachers will find helpful.

As instruction in current events has become an important part of every school curriculum and as today's students will be reading current literature long after histories have been placed on the shelf, schools will welcome this compilation of suggestions for handling classes in current events.

Any teacher or supervisor may secure free copies by writing to the *Review of Reviews*, Educational Department, 30 Irving Place, New York City.

TEACHERS AND THEIR QUALIFICATIONS

The unsettled condition of the teacher market is set forth in the following bulletin issued by the University of Wisconsin:

A record number of prospective teachers—700 in all—have enrolled with the office of Thomas Lloyd Jones, chairman of the committee on high-school relations at the University of Wisconsin this summer to obtain positions. Of

this total, all but about 200 have been placed in teaching positions. The usual number enrolled in recent years has been between 400 and 500.

In June, 1921, exactly 92 students, including 22 men, received the teacher's certificate from the university. This number was more nearly normal, according to pre-war standards, than has been the case for four years.

Mr. Jones cites several reasons for 200 candidates being without positions. A number of recent university graduates from the courses in commerce, chemistry, and economics, who are not prepared for teaching, but who have been prevented from getting positions in their special fields because of the business and financial depression, have now turned to the teaching profession. Such applicants do not have the required number of education credits demanded by accredited high schools.

There are also a number of persons returning to the teaching profession from industrial, commercial, and government positions. In the third group of candidates are those who are fully prepared to meet the requirements of those schools belonging to the North Central Association of Colleges and Secondary Schools but desire larger salaries than those offered.

"We have many excellent candidates," said Professor Jones, chairman of the committee, "who are qualified to fill positions paying $1,600 or more a year and who meet the requirements of the North Central Association."

There are 99 schools in Wisconsin that belong to the North Central Association—a standardizing educational agency which now includes in its membership 135 institutions of higher rank and more than 1,000 institutions of secondary rank, located in 18 states.

"The aim of the North Central Association of Colleges and Secondary Schools is, first, to bring about a better acquaintance, a keener sympathy, and a heartier co-operation between the colleges and secondary schools of this territory; second, to consider the common educational problems and to devise the best ways and means of solving them; and, third, to promote the physical, intellectual, and moral well-being of students by urging proper sanitary conditions of school buildings, adequate library and laboratory facilities, and higher standards of scholarship and remuneration of teachers."

One of the standards to be maintained by all schools belonging to the association is that the minimum attainment of any teacher of any academic subject, and likewise of the supervisors of such subjects, shall be equivalent to graduation from a college belonging to the North Central Association requiring the completion of a four-year course of study beyond the standard four-year high-school course. The association also requires that the minimum professional training of a teacher of any academic subject be at least eleven semester-hours of education. This latter requirement prevents many of those enrolled with the committee from obtaining positions in these schools.

Teachers of regular academic subjects, such as English, history, and mathematics, have been in much greater demand by high schools than those teaching in other lines. Teachers of special subjects, according to Professor Jones, have

been dropped by many schools, owing to a desire on the part of the schools to curtail expenses at this time. The number of requests for teachers of domestic science and manual training has been nearly normal.

It is not at all clear what inferences the author of this bulletin intends shall be drawn from the facts recited. There are some people who are willing to advocate the abandonment of all special requirements in these times when it is difficult to secure teachers. There are a great many people who have been critical of the North Central Association for requiring educational courses of teachers in preparation. Criticisms of requirements are sure to become more intense and pointed at times when personal or institutional interests are in general difficulty.

To those who view the present chaotic conditions in the teaching profession with a desire to see the situation rectified rather than relieved, facts like those presented in the Wisconsin bulletin suggest that it is time for the leaders in our profession to canvass, with the greatest care and with all the wisdom that co-operative counsel can focus on the problem, the methods of defining more adequately the qualifications which teachers should possess and the means by which our profession can more adequately recruit and distribute its membership.

For his own part, it is the firm belief of the writer of this editorial that the teaching profession will never flourish until it sets up a definite and universal requirement of professional training and until it develops a system of professional information that will make it possible to describe with exactness the requirements of schools. When these needs shall be met, the professional standing of teachers in service and their tenure ought to be defined in unequivocal terms. The terms which will then be used in describing teaching-positions will be terms of training and professional service. Until something of this sort is achieved, there will be the kind of hit-and-miss social situation described by Professor Jones.

News Items from the School of Education of the University of Chicago

THE BUSINESS ADMINISTRATION OF COLLEGES

While most people recognize the fundamental importance of sound business management in our educational institutions, very little literature is to be found in this specific field, so that college authorities and others interested in promoting economy and efficiency in the use of public funds for higher education have little to guide them. A distinct contribution in this connection has recently been made by Julian A. Burruss, Ph.D., Virginia Polytechnic Institute, Blacksburg, Virginia, in *A Study of the Business Administration of Colleges Based on an Examination of the Practices of Land Grant Colleges in the Making and Using of Budgets.* The study includes detailed considerations of the general organization and administration of finances, the original budget of requests for appropriations, the working budget, budget forms and classifications, accounting, salaries, supplies and inventories, collecting and paying, and financial reporting. Numerous printed forms are included. The necessary data were secured from the land-grant colleges of eighteen states on the coast and in the Middle West which were visited for the purpose of examining their business methods.

It is insisted that the only logical basis for the formulation of budgets and the use of funds is found in the objectives of the institutions. First, there is the necessity of setting clearly the task, determining what is to be done, the grade or standard to be reached, and the time to be consumed; second, there is the necessity of ascertaining just what materials, equipment, and organization should be provided; and third, there is the necessity of calculating the cost of providing the required facilities and of doing the work. Until the first two steps are taken the last cannot be

intelligently taken, although in practice the order is often reversed. This sometimes leads to waste and inefficiency in the use of public funds.

A comprehensive budget of both requests and expenditures, the application of approved methods of the industrial world to the business of our educational institutions, and clear and full reporting of financial facts offer the best assurance that the public will derive full value from the huge sums now being expended for public education; and this may be applied to any level, from the primary school to the university. Only as an institution bases its requests on clearly defined objectives should it expect to receive support, and only as support is supplied to meet these objectives should the public expect to get the desired results.

HISTORY OF THE ILLINOIS STATE NORMAL SCHOOLS

The history of the state normal schools of Illinois from 1857 to 1920 has been one of marked progress, as shown by E. W. Combs, A.M., Principal of the High School, Prairie Depot, Ohio, in a recent study of these schools. From 1857 to 1869 the Illinois State Normal University had the distinction of being the only normal school in Illinois. It was followed in 1869 by the Southern Illinois State Normal University, by the Northern and the Eastern State Normal schools in 1895, and by the Western Illinois State Normal School in 1899. The gradual extension of normal-school facilities to all parts of Illinois has been influential in raising the educational standards of its schools. The constantly increasing attendance shows clearly that the schools are fulfilling their mission of preparing the young men and women for teaching-positions in the state. At the present time the five schools are under the direct supervision of a single normal-school board consisting of nine members and two ex-officio members—the Superintendent of Public Instruction and the Director of the Department of Registration and Education.

THE SELECTIVE PRINCIPLE IN AMERICAN SECONDARY EDUCATION. I

GEORGE S. COUNTS
Yale University

Throughout history the selective principle has dominated secondary education. At no time and in no place has there been any serious effort to extend to all classes the privileges of an education that goes beyond the period of childhood. Whether of birth or of talent, the bar has always been raised.

It is true that in the development of secondary education in our own country a theoretical departure from this principle has been made or at least attempted. Our succession of secondary schools has certainly witnessed a tendency toward democratization. As we have passed from the Latin grammar school through the academy to the free public high school, the curriculum has been broadened, and the number of students in attendance has increased. This is particularly true of the high school which, for half a century, has been expanding in a manner quite without precedent in the history of educational institutions. From 1890 to 1918, while the total population was increasing from 62,622,250 to approximately 105,253,000, the number of young people enrolled in the public high school increased from 202,963 to 1,645,171.

This remarkable development has caused some to jump to the conclusion that we have abandoned the selective principle in practice—that in the United States the public high school is patronized by all classes without distinction. Thus, in a statement issued by the teachers of the Washington Irving High School for Girls in New York City in 1911, we find these words: "A public high school differs from an elementary school chiefly in the age of its children." Such a statement assumes a practical abandonment of the selective principle and marks a new era in the history of secondary education.

It is evident, however, after a moment's reflection, that this view completely disregards the facts. At the present time there

are probably not more than 2,000,000 students enrolled in those four years of our educational organization which constitute the conventional secondary school. Yet there are approximately 8,300,000 children of high-school age in the nation. This means that only about 25 per cent of the children of high-school age are in high school, in spite of the unprecedented growth of secondary education in recent years.

For the purpose of discovering the sources from which the high-school population is drawn and the extent to which secondary education in the United States is still selective in character, the writer during the past two years has been engaged in a rather careful study of the high-school populations in four cities—Bridgeport, Connecticut; Mount Vernon, New York; St. Louis, Missouri; and Seattle, Washington. It is the object of this and subsequent articles to present the more important findings of this investigation.

METHOD OF THE INVESTIGATION

In attacking this problem it was decided to take a relatively complete census of the high-school population in each of several typical American cities. Obviously, returns from a single high school drawing its students from a single quarter of one of our large cities would not be satisfactory because of the well-known tendency of populations of similar social and economic standing to gravitate to the same section of the city. It was thought desirable to study a community sufficiently complex to present all the more important groups (except the agricultural) found in modern society, and sufficiently large to provide representation of each of the groups adequate for statistical purposes. For these reasons, an entire city was studied in each case.

With a few exceptions, a uniform procedure was followed throughout in getting the data. All students in attendance on a certain day were required to fill out a card on which were questions asking for various educational and sociological information, the character of which will become clear in the course of this presentation. In order to avoid confusion, a set of instructions, along with a card filled out for a hypothetical case, was sent to each teacher in charge of a home room, by whom the cards were to be distributed

to the students. In most cases the name of the student was not asked for. While a detailed statement and criticism of the method are not possible here, it should be said that, in the main, the cards were filled out with care and that there is no reason for believing that there was sufficient bias to prejudice the results of the study.

CHARACTER OF THE CITIES STUDIED

A few words should be said about the character of the cities in which the study was made. While they were chosen not altogether because of their representative character, but rather because it was possible to secure the necessary data from them, they may be regarded as fairly representative of the country. Geographically they are widely distributed, although it is admitted that the real South, the Great Lakes region, and the plains states are not adequately represented.

According to the federal census for 1920, Bridgeport has a population of 143,555; Mount Vernon, 42,726; St. Louis, 772,897; and Seattle, 315,312. All but St. Louis have been growing very rapidly in recent decades. This old middle-western city was a great urban center of more than 300,000 inhabitants in 1870 and therefore exhibits a stability in many ways not characteristic of the more rapidly growing cities.

The people in these four cities include all the racial and cultural elements to be found in urban America. Seattle is one of the least foreign of our large cities with almost 50 per cent of its people classed as "native white of native parentage." Bridgeport, on the other hand, is one of our most foreign cities with almost three-fourths of its inhabitants of foreign and mixed parentage. If we examine the immigrant stocks represented, the greatest diversity is found. In Seattle the immigrants are mostly of the "old" immigration from the north and west of Europe, with the Scandinavians predominating; in St. Louis both the "old" and the "new" immigration are well represented; while in the two eastern cities the "new" predominates with an exceptionally large representation of Italians in Mount Vernon and of Austro-Hungarians in Bridgeport. It should also be noted that the Chinese and Japanese have a large contingent in Seattle, and the negroes are well represented in St. Louis.

Occupationally, the cities also exhibit considerable diversity. Bridgeport is one of our most highly industrialized cities with over 60 per cent of its workers engaged in the manufacturing and mechanical industries, while Seattle is at the other extreme, with less than one-third of its workers so engaged, and may be regarded as a great commercial and trade center. St. Louis shows less specialization and is a center for both trade and industry. Mount Vernon differs from the other three in being in large measure a residential community for people working in New York City.

In wealth the four cities represent the mean rather than the extremes. According to the report of the federal census for 1919 on the estimated true value of property per capita in American cities, these cities in every case approximate very closely the average for cities of their class. With the exception of St. Louis, they are slightly above this average. All are apparently cities of moderate wealth.

The proportion of children of high-school age who are attending high school is another matter that deserves attention. In this respect the cities show important differences. Basing our calculations on the report of the Bureau of Education for 1918 and estimates of the number of children of high-school age in the general population for the same year, we find that 20.4 per cent of the children of high-school age in the entire country were in high school. St. Louis and Bridgeport made a record somewhat below this with percentages of 17.8 and 18.7 respectively—while for Seattle and Mount Vernon these percentages are 28.8 and 31.9. The Seattle record is particularly exceptional for a city of more than 300,000 inhabitants.

CLASSIFICATION OF OCCUPATIONS

Occupation is the central fact in the life of the ordinary person. It determines in considerable degree his place of residence, his friends and acquaintances, what he does and what he thinks, his social and economic status, and his outlook on life. The occupation of the father of the high-school student has therefore received very large emphasis in this investigation. Four or five questions, depending on the city, were asked each student concerning the occupation

of his father. From the returns to these questions it was possible to get a relatively reliable and accurate idea of the father's occupation, even though he was not living or not working at the time this census was taken. In a few cases information was given for the guardian instead of the father, but the facts for the latter were used wherever available.

The first task encountered as soon as the tabulation of the data commenced was a classification of occupations significant for the purposes of this study. Since no existing classification was satisfactory, after some experimentation the following system was evolved, recognizing sixteen occupational divisions:

1. *Proprietors*—Bankers, druggists, hotel-owners, landlords, laundry-owners, lumbermen, manufacturers, merchants, mine-owners, publishers, shopkeepers, etc.

2. *Professional service*—Architects, artists, clergymen, dentists, engineers, lawyers, pharmacists, physicians, surgeons, teachers, etc.

3. *Managerial service*—Contractors, foremen, managers, officials and inspectors (private and public), superintendents, etc.

4. *Commercial service*—Agents (real estate and insurance), buyers, clerks in stores, commercial travelers, salesmen, etc.

5. *Clerical service*—Accountants, bookkeepers, canvassers, cashiers, clerks (except in stores), collectors, etc.

6. *Agricultural service*—Dairymen, farmers, gardeners, ranchmen, etc.

7. *Artisan-proprietors*—All artisans who own the shops in which they work, including bakers, barbers, blacksmiths, cleaners and dyers, cobblers, machinists, milliners, plumbers, printers, tailors, tinners, etc.

8. *Building and related trades*—Carpenters, electricians, lathers, masons, plasterers, plumbers, etc.

9. *Machine and related trades*—Blacksmiths, draftsmen, engineers (stationary), founders, machinists, molders, pattern-makers, tool-makers, etc.

10. *Printing trades*—Bookbinders, compositors, electrotypers, engravers, linotypers, pressmen, typesetters, etc.

11. *Miscellaneous trades in manufacturing and mechanical industries*—Bakers, brewers, cobblers, cigar-makers, cutlers, dyers,

glass-blowers, milliners, platers, tailors, tanners, weavers, etc., and machine operatives.

12. *Transportation service*—Baggagemen, brakemen, chauffeurs, conductors, engineers (locomotive and marine), longshoremen, motormen, sailors, switchmen, etc.

13. *Public service*—Detectives, firemen (fire department), guards, policemen, sailors, soldiers, watchmen, etc.

14. *Personal service*—Barbers, cooks, janitors, launderers, porters, sextons, waiters, etc.

15. *Miners, lumber-workers, and fishermen.*

16. *Common labor*—Including all apprentices and helpers.

TABLE I

THE OCCUPATIONS, BY NUMBER AND PERCENTAGE, OF THE FATHERS OR GUARDIANS OF 17,265 STUDENTS IN ALL FOUR YEARS OF THE HIGH SCHOOLS OF BRIDGEPORT, MOUNT VERNON, ST. LOUIS, AND SEATTLE*

	Number	Percentage
Proprietors	3,427	19.8
Professional service	1,629	9.4
Managerial service	2,846	16.5
Commercial service	1,637	9.5
Clerical service	996	5.8
Agricultural service	416	2.4
Artisan-proprietors	723	4.2
Building trades	1,325	7.7
Machine trades	1,227	7.1
Printing trades	186	1.1
Miscellaneous trades	654	3.8
Transportation service	846	4.9
Public service	270	1.6
Personal service	238	1.4
Miners, lumber-workers, and fishermen	66	0.4
Common labor	213	1.2
Occupation unknown	566	3.2
Total	17,265	100.0

* Data secured at various times during school years 1919–20 and 1920–21.

PARENTAL OCCUPATION AND THE HIGH-SCHOOL POPULATION

On the basis of the foregoing classification of occupations, the students in all four years of the high schools in these four cities were

classified according to the occupation of the father or guardian. The gross results of this tabulation are presented in Table I in which appear the number and percentage of students from each occupational group. It will be observed that of the 17,265 cases studied, 3,427, or 19.8 per cent, were classed as proprietors, 1,629, or 9.4 per cent, as professional workers, etc. There was a small number of students in each high school who did not give sufficient data to make an occupational classification possible. These were all placed in a seventeenth category labeled "occupation unknown," and constitute but 3.2 per cent of the total.

An examination of the table shows that there are very wide differences in the representation of the various groups in the high school. Some of them, such as the miners, lumber-workers, and fishermen, the printing trades, common labor, personal service, and public service, are practically without representation. On the other hand, as has already been noted, the fathers of almost one-fifth of these high-school students are engaged as proprietors. Following the proprietors are three other non-labor groups arranged in the following order: managerial service, commercial service, and professional service. Only two of the labor groups may be said to be fairly well represented, the building and machine trades.

But this table by itself is of little significance, for it throws practically no light on the question we have raised regarding the selective principle in secondary education. Do these percentages indicate selection or not? Assuming no selection, should the printing trades, common labor, personal service, and public service constitute a larger or smaller proportion of the total high-school enrolment? This is a question we are unable to answer without knowing something about the representation of these different occupations in the general population.

COMPARISON WITH THE ADULT POPULATION

In getting occupational data for the populations of these four cities it was necessary to rely on the federal census for 1910, since the last census is not yet available. Here we find all persons over ten years of age gainfully employed classified according to occupation. But it would obviously be fallacious to make a comparison

between the number of high-school students whose fathers are engaged in a particular occupation and the number of persons over ten years of age in the general population engaged in that occupation because of the well-known fact that certain occupations, such as clerical service, are recruited very largely from youthful workers. Such occupations will be represented by a comparatively small proportion of men old enough to be fathers of high-school students. Since it has been found that the median age of such fathers is around forty-eight years, it was decided to base the comparison altogether on the number of men over forty-five years of age engaged in each occupation in the four cities. This was found to be possible by a series of simple calculations, starting with the classification of workers according to age in certain occupations. The writer would have preferred taking forty instead of forty-five years as the lower age limit, since there is a large number of fathers of high-school students between these two ages, but the census data did not permit it.

Let us turn now to Figure 1 in which this comparison is made. Here we find for each occupational group the number of children in high school for each 1,000 males over forty-five years of age. Thus for each 1,000 men over forty-five years of age engaged in managerial service in the four cities in 1910, there were 400 students in high school, when this investigation was made, whose fathers or guardians were engaged in this group of occupations. The very wide range of representation is at once apparent. At the upper extreme is the managerial service, just referred to, with a record of 400, while at the lower extreme is common labor with a record of but 17. The order of the various occupational groups is of interest. We have already noted the extremes. Following the managerial service are three great non-labor groups—professional service, proprietors, and commercial service. Then come the printing trades, which have a low absolute representation in the high-school population as shown in Table I, because of the small number of persons engaged in these trades in any ordinary city population. The proportional representation of this group is the highest of all the labor groups and slightly higher than one of the non-labor groups, clerical service. This record is probably to

be explained in terms of the superior educational qualifications required in the printing trades, the associations commonly formed in the occupation, and the stability of employment. Public service also is well represented, probably because of the somewhat careful selection of the workers, the nature of the work, and the stability of employment. At the other end of the series are the lower and

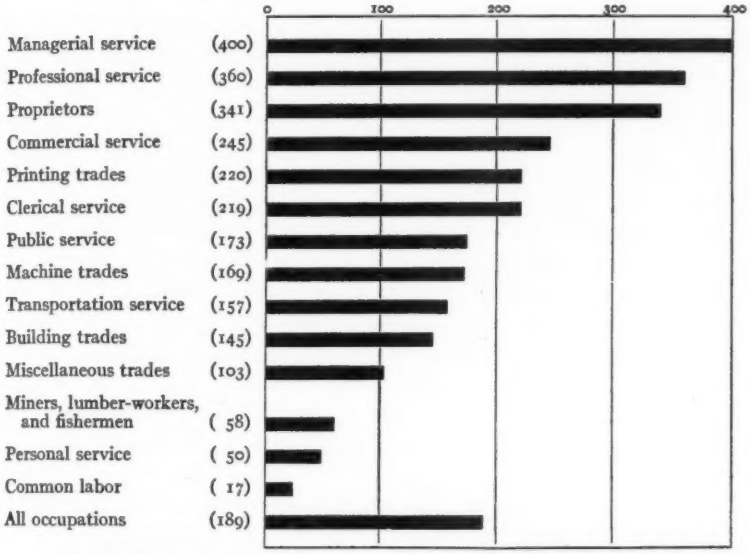

FIG. 1.—The number of children in the high schools of four cities (Bridgeport, Mount Vernon, St. Louis, Seattle) from each occupational group for each 1,000 males over forty-five years of age engaged in that occupation, according to the federal census for 1910. Data from 16,283 high-school students.

less respectable forms of labor, such as common labor, personal service, miners, lumber-workers and fishermen, and the miscellaneous trades. It should be recalled that this last group includes machine operatives and many semi-skilled workers.

The reader has perhaps observed that two of the occupational divisions recognized in the classification are not included in this figure, viz., the agricultural service and the artisan-proprietors. The reason for the exclusion of the first of these groups is obvious.

There is no natural relation between the number of children in the high schools of a particular city whose fathers are engaged in agricultural service and the number of adults so engaged living in that city, because many of the students in this group are either not living at home or are commuting from outside the city. This group is extraneous to urban life. The exclusion of the artisan-proprietors was necessary because they are not given distinct recognition in the federal census. There they are classed either as proprietors or as artisans, depending on the preponderance of function in each case. Consequently in this study they were allotted to the appropriate divisions.

Some criticism may be made of the order in which the occupations occur in Figure 1. In the light of other findings of this investigation that cannot be presented in this article, managerial service certainly should not be at the top, but rather should be in fourth place. This group occupies first place here probably because of certain difficulties encountered in translating the occupational classification of the census into the classification used here. In the census, managers are not always separated from proprietors, with the consequence that the number of managers in the returns is reduced somewhat below their actual number in the population. It also seems probable that some persons occupying managerial positions in the field of commerce are returned in the census as commercial workers. With this single shift, the order should stand about as it is, except perhaps that the clerical service should be above the printing trades.

It is probable, for two reasons, that the proportion of children in high school from the laboring groups is somewhat smaller than this figure suggests. In the first place, the acceptance of the number of men over forty-five in each occupation as the basis for comparison gives a certain advantage to those occupations in which the proportion of such men is relatively small, because over 30 per cent of the fathers of high-school students are under forty-five. As a consequence, the occupations engaging few men beyond this age are not given a representation in the general population proportionate to the actual number of fathers of high-school students to be found in them. Since, on the average, the laboring classes are recruited less

from the older men than are the other groups, it is apparent that the procedure followed here favors them. Among the non-labor groups it is true that the clerical and commercial workers are likewise favored. In the second place, the average number of children per family among the manual laborers is somewhat larger than it is among the other classes of the population. This is especially true of the lower grades of labor. Therefore, if the children from these elements in the population were enrolled in the high school in proportionate numbers, their ratio to the number of adults of the parental age in the same population groups should be larger than that for children from other classes with a lower birth rate. Both of these considerations should incline us, therefore, toward a revision of Figure 1 in the direction of larger rather than smaller differences between the two extremes.

In conclusion, it may be said that, in the light of this investigation of the entire high-school populations in four cities, public secondary education in the United States has not by any means abandoned the selective principle in practice. The public high school is patronized very largely by the more fortunate social and economic classes, and the lower grades of labor have as yet hardly begun to think in terms of secondary education. It remains in subsequent articles to observe the progress of these different groups through the school and the social composition of certain groups of children of high-school age not attending high school.

[*To be continued*]

JUNIOR-COLLEGE COURSES IN 1920–21. II[1]

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THE OFFERINGS BY SUBJECT-GROUPS AND COURSES

Because this article would otherwise run beyond publishable bounds, this section will be restricted to setting forth the variety of courses offered in each field and their frequency of occurrence in the junior-college catalogues. Although a tabular presentation of the amount of credit assigned to each course would add something to the description, the aspect presented is one of large significance.

The portion of the description being made here is hardly to be regarded as complete without a statement concerning a peculiar difficulty encountered in making the tabulations. This difficulty is one that concerns private colleges almost exclusively and has its source in the provision of certain special kinds of work in what seem to be departments more or less distinct and separate from those included in the junior college proper. Among these departments are commerce, home economics, music, art, expression, and physical culture. The work in these departments is rather commonly described in a portion of the catalogue distinct from that in which the junior-college work and organization are set forth, and almost as frequently there is no statement of the academic level on which the work is pitched or of the extent of recognition, if any, made of this work if taken by a junior-college student. A number of catalogues indicated specifically the amounts and the work in these departments which are acceptable. These instances lent themselves readily to tabulation. In every case, however, the catalogue was carefully canvassed for pertinent evidence, and wherever any definite statement appeared, or the context made it possible to compute the credit assigned, the data were included.

[1] Part I, setting forth the general curricular situation and the prescribed work, appeared in the October number.

Perhaps the most notable example of this difficulty was in the field of commerce. Two of the private institutions announce an offering of commercial work for junior-college credit, eleven list no offering of any kind, and the remaining twenty-two make some sort of offering in a more or less separate department but indicate nothing as to its acceptance for junior-college credit. Almost without exception the courses listed are those offered in business colleges or in commercial departments in public high schools, such as shorthand (listed in 15 catalogues), typewriting (15), bookkeeping (12), office training (6), commercial law (6), penmanship (5), etc. The practice followed in this study was to exclude such work from the tabulations if no evidence appeared that the work is regarded as a part of the junior-college offering or that credit in some amount is allowed for it. Doubtless, this may be a source of error in the tables which follow as well as in the averages, totals, etc., of Table I, as credit may sometimes be allowed for such work without published announcement of the fact. Nevertheless, the absence of printed evidence in the catalogues that effort is being made to co-ordinate the special departments with the junior college should give assurance that the procedure followed in tabulation is a justifiable one.

Courses are introduced into the tables if they appear at least three times in the entire group of colleges, those mentioned only once or twice being named in the explanatory paragraphs. In order the better to appreciate the frequency of appearance of the courses, the reader will do well to bear in mind the number of junior-college catalogues contributing to the arrays, i.e., fifty-eight in the entire group, twenty-three of which are from public and thirty-five from private institutions.

English and public speaking.—In addition to the courses in English listed in Table III, the following were found to be listed once or twice: narration, exposition, argumentation, description and narration, exposition and argument, oral and written composition, literary appreciation, English literature, modern English literature, American literature, "advanced" literature, Milton, Victorian poetry, Tennyson, Browning, English poetry and essays, the essay, Victorian prose, nineteenth-century prose, Shakespeare

and modern drama, history of the drama, applied drama, drama and poetry, modern fiction, the American novel, current literature, and modern tendencies.

In public speaking the additional courses are: voice and diction, extempore speaking, debate, oratory, public address and parliamentary procedure, play interpretation, dramatic literature,

TABLE III

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES IN ENGLISH AND PUBLIC SPEAKING

Courses	Public	Private	All
English:			
Freshman rhetoric ("Composition" or "English")	21	34	55
Advanced composition or rhetoric	3	1	4
Survey or history of English literature	12	24	36
Masterpieces or types of English literature	3	2	5
History of American literature	6	5	11
English poetry	1	7	8
Romantic poetry	1	3	4
Nineteenth-century poets	0	3	3
Drama	3	6	9
Shakespeare	3	7	10
Modern drama	5	5	10
English novel	5	8	13
Short-story	1	3	4
Public speaking:			
Public speaking	7	6	13
Expression	3	6	9
Interpretative reading	3	2	5
Story-telling	1	2	3

dramatics, Shakespearean reading, stage art (play coaching), and pantomime.

Foreign languages.—Table IV indicates that the foreign language most frequently recognized in the offerings is French. In terms of frequency of recognition, the other languages follow in the order here given: Latin, Spanish, German, and Greek. Italian, Portuguese, and Russian are each offered in one or two schools. It is worth noting that high-school Latin is not uncommonly offered for junior-college credit. However, this is usually in telescoped form.

Courses offered once or twice are Greek: Homer, New Testament, and Greek or classical mythology; Latin: elementary Latin,

Caesar, Latin authors, Roman literature in translation, Roman antiquities, and a composite course; French: drama, scientific, commercial, conversation, and composition; Spanish: modern literature, literature, Spanish-American literature, modern and

TABLE IV

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES IN FOREIGN LANGUAGES

Courses	Public	Private	All
Greek:			
First year	5	11	16
Second year	2	8	10
Greek or classical mythology	2	1	3
Latin:			
First year (college)	14	34	48
Second year (college)	8	27	35
Beginning Latin and Caesar	3	0	3
Cicero's *Orations* and Virgil's *Aeneid*	3	1	4
Cicero's *Orations*	3	8	11
Virgil's *Aeneid*	3	7	10
Composition	3	5	8
French:			
Elementary or first year	20	32	52
Intermediate or second year	20	29	49
Advanced	3	11	14
Literature	3	9	12
Nineteenth-century literature	1	3	4
History or survey of French literature	3	4	7
Spanish:			
Elementary or first year	20	26	46
Second year	18	22	40
Advanced	3	4	7
German:			
Elementary or first year	7	14	21
Intermediate or second year	6	11	17
Advanced	2	5	7

contemporary novel and drama, and commercial; German: literature, classical literature, dramas, survey or history of German literature, composition, scientific, and a variable course.

Mathematics.—In addition to courses which are merely combinations of those divisions of mathematics which are listed in Table V, courses offered in only one or two junior colleges are review arithmetic, elementary algebra, plane geometry, solid analytic geometry, unified mathematics, and history of mathematics.

Science.—It appears from Table VI that the fields of biology and chemistry are those most commonly recognized in junior-college courses, that physics also is frequently offered, and that

TABLE V

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES IN MATHEMATICS

Courses	Public	Private	All
Higher algebra	10	3	13
Solid geometry	6	21	27
Trigonometry	12	32	44
Solid geometry and trigonometry	3	0	3
College algebra	10	25	35
Analytic geometry	15	26	41
Differential calculus	7	9	16
Integral calculus	5	7	12
Differential and integral calculus	11	0	11
Plane analytic geometry and differential calculus	4	0	4

TABLE VI

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES IN SCIENCE

Courses	Public	Private	All
Biology, etc.:			
General biology	3	6	9
General botany	21	12	33
Bacteriology	7	3	10
General zoölogy or animal biology	18	12	30
Vertebrate zoölogy	1	2	3
Human physiology	2	8	10
Human physiology and hygiene	1	2	3
Heredity, evolution, and genetics	5	1	6
Chemistry:			
General or general inorganic	13	29	42
Qualitative	9	10	19
Inorganic and qualitative	9	2	11
Quantitative	11	1	12
Organic	12	7	19
Physics:			
General	14	11	25
Mechanics and heat	4	1	5
Sound, light, and electricity	2	1	3
Geology:			
Geology	3	1	4
Physiography	5	2	7
Astronomy	3	1	4

geology and astronomy are only occasionally found. Except in chemistry, the proportions of the private institutions offering work in each of the fields are notably smaller than those of the

public institutions, and even in this subject the private institutions lag behind in the advanced courses.

Courses offered only once or twice are biology: advanced botanical work, structural botany, physiological and ecological botany, systematic botany, field botany, plant genetics and plant production, applied bacteriology, advanced zoölogy, invertebrate zoölogy, field zoölogy, economic zoölogy, entomology, embryology,

TABLE VII

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES IN SOCIAL STUDIES

Courses	Public	Private	All
History:			
Ancient	1	3	4
European	4	18	22
Medieval European	4	0	4
Modern European	17	11	28
Western Europe	1	4	5
English	11	15	26
American or United States	14	24	38
Economic history of the United States	2	1	3
Economic history	2	1	3
Political science:			
Political science	5	0	5
American government	8	5	13
Comparative government	3	1	4
Economics:			
Principles of or introduction to economics	18	20	38
Rural economics	3	0	3
Public finance and taxation	3	0	3
Sociology:			
Sociology or introduction to sociology	13	18	31
Labor problems	3	0	3

vertebrate anatomy, mammalian anatomy, and human anatomy; chemistry: advanced general and quantitative, qualitative and quantitative, physical chemistry, chemical technology and electrochemistry, descriptive chemistry, and "practical" chemistry; physics: elementary, advanced, radio-telegraphy, applied, and problem course; geology: dynamical and structural, historical, mineralogy, and geology and mineralogy.

The social subjects.—Courses in history, as indicated in Table VII, constitute the predominant offering in the field of the social studies. The field least commonly recognized is political science.

Courses offered less frequently than those listed in the table are history: general, Greek civilization, modern, English constitutional, constitutional, history of the West, current history, and contemporary civilization; political science: civil government, state and local government, municipal government and elements of law; economics: economic problems; sociology: problems of sociology, modern social reform movements, rural sociology, the family, and anthropology.

TABLE VIII

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES IN PHILOSOPHY, PSYCHOLOGY, AND BIBLE AND RELIGION

Courses	Public	Private	All
Philosophy:			
Ethics	4	13	17
Logic	7	10	17
Psychology:			
Psychology	15	24	39
Experimental psychology	1	3	4
Bible and religion:			
Bible as literature	0	6	6
New Testament	0	3	3
Life of Christ	0	8	8
Acts and Epistles	0	3	3
History of Hebrews	0	3	3
Fundamental moral and religious values	0	5	5

Philosophy, psychology, and Bible and religion.—The only courses in the field of philosophy in addition to the two named in the table, ethics and logic, are philosophy and history of philosophy. In psychology the additional courses are social, experimental and social, industrial and social, and business psychology. Courses along religious lines are offered only in private institutions. Those offered once or twice only are Bible, Christian evidences, Old Testament, founders and rulers of ancient Israel, Christian life, Christian religion, missions, and a composite course.

Physical education.—Work in physical education in addition to courses listed in Table IX includes first aid, corrective gymnastics, military training, games, folk-dancing, aesthetic dancing, theory of physical training, and applied work.

The fine arts.—Of the two fields included in Table X, music is the more frequently offered. Courses in music listed once or twice

in the catalogue are fundamentals, ear-training, composition, harmony and composition, sight-singing, sight-singing and ear-training, violin, stringed instruments, orchestration, instrumentation, choir, glee club, and community music. In art such courses are art, art appreciation, principles of art, principles of representation, history of French painting, history of English painting,

TABLE IX

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES IN PHYSICAL EDUCATION

Courses	Public	Private	All
Hygiene	5	2	7
Gymnasium or physical training	11	11	22
Athletics or sports	2	2	4
Swimming	0	3	3
Playgrounds	0	5	5

TABLE X

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES IN THE FINE ARTS

Courses	Public	Private	All
Music:			
History of music	4	10	14
Harmony	6	9	15
Counterpoint	2	3	5
Appreciation	2	4	6
Musical analysis	0	3	3
Voice	2	2	4
Piano	2	2	4
Orchestral practice	2	1	3
Chorus	2	1	3
Art:			
Introduction to art	2	5	7
History of art	0	7	7
History of painting	0	4	4
Freehand drawing	3	2	5
Construction	1	2	3
Design	2	2	4

historic styles, domestic architecture, history of architecture, perspective and interior decoration, line drawing, light and shade, antique drawing, design and composition, theory of color, furniture design, woodwork design, painting, drawing and painting, china painting, interior decoration, lettering styles, lettering, commercial art, stagecraft, bookbinding and clay work, modeling, and pottery.

TABLE XI

NUMBER OF JUNIOR COLLEGES OFFERING CERTAIN COURSES OF AN OCCUPATIONAL CHARACTER

Courses	Public	Private	All
Agriculture:			
Soils and soil technology	3	0	3
Poultry husbandry	2	1	3
Commerce:			
Penmanship	3	0	3
Business arithmetic	3	1	4
Shorthand	6	1	7
Typewriting	6	1	7
Shorthand and typewriting	3	0	3
Office training	4	0	4
Bookkeeping	4	0	4
Special sets	3	0	3
Accounting	9	1	10
Business English or "English of commerce"	3	0	3
Salesmanship	3	0	3
Industrial and commercial geography	4	0	4
Markets and prices	3	0	3
Theory of investments	5	0	5
Money and banking	5	0	5
Commercial law	9	1	10
Education:			
Introduction to education	1	2	3
History of education	7	20	27
Principles of education	5	5	10
Educational psychology	3	16	19
Methods	3	16	19
School or classroom management	1	13	14
Observation and practice teaching	0	4	4
Special methods in home economics	0	4	4
Special methods in public-school music	1	2	3
Sunday-school methods	0	4	4
Engineering and industrial:			
Shop work—wood	3	1	4
Pattern work	4	2	6
Shop work—forge and machine	5	0	5
Machine shop	3	1	4
Automobile and gas-engine laboratory	0	3	3
Mechanical drawing	9	1	10
Machine drawing	2	2	4
Machine design	3	1	4
Architectural drawing	1	2	3
Elements of analysis	5	0	5
Descriptive geometry	11	2	13
Surveying	9	5	14
Analytical mechanics	2	1	3
Materials of construction	3	0	3
Home economics:			
Selection and preparation of foods	5	19	24
Food study or food problems	4	9	13
Dietetics	4	8	12

TABLE XI

Courses	Public	Private	All
Home economics:			
Cookery	3	0	3
Preparation and service of food	1	8	9
Chemistry of foods	1	2	3
Sewing (or plain sewing)	1	4	5
Selection and construction of clothing	4	8	12
Elementary clothing	0	5	5
Dressmaking	3	1	4
Millinery	1	6	7
Household art	2	1	3
Costume or dress design	2	2	4
Dressmaking and costume design	0	4	4
Textiles	0	4	4
Sewing or clothing and textiles	0	4	4
Art needlework	1	2	3
Home decoration	1	2	3
Home furnishing	1	2	3
House or home planning	1	3	4
Home nursing	1	6	7
Home management	2	7	9
Household problems	4	4	8
Household physics	2	1	3
Library:			
Library science	4	0	4

Occupational training.—The variety of courses in agriculture appearing but once or twice in the catalogue descriptions is very wide, some—not all—of which are farm crops, crop production, cereal crops, forage, root and miscellaneous crops, cotton-classing, vegetable gardening, horticulture, citriculture, pomology, agricultural physics, fertilizers, live stock, dairying, horses, stock-judging, feeds and feeding, breeds and breeding, poultry, plant diseases, agricultural chemistry, farm management, and farm mechanics.

In commerce some additional courses are spelling, calculating machine, cost-accounting, auditing, advertising, foreign trade, domestic trade, corporation finance, transportation, business organization, and employment management.

In education are found, as well as those listed, courses in history of manual arts, history and principles of education, psychology of elementary-school subjects, philosophy of education, school administration, school law, and school hygiene, as well as special methods in a wide range of teaching subjects.

In the engineering and industrial group there are various kinds of additional shop courses, such as forge, foundry, sheet metal, automobile, and tractor; courses in drawing and design, such as auto, projection, kinematic, and electrical. There are also courses in engineering principles, mechanism and hydraulics, engineering physics, machine-tool analysis, gear and cam construction, steam turbines, heating and ventilation, D-C machines, A-C machines, illumination, and road-building.

In home economics are such additional courses as nutritional physiology, serving, institutional cookery, lunchroom management, tailoring, applied design, textiles and handwork, the family, child welfare, care and feeding of infants, laundry, housewifery, household chemistry, and household accounts.

A few additional courses in library training are also to be found, and courses in journalism, pharmacy, and nursing are offered in one or two schools.

WHERE TEST SCORES AND TEACHERS' MARKS DISAGREE

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A high-school teacher who has seen educational theories come and go has a proverbially conservative attitude toward "the latest fad." Such is the attitude of many minds toward mental testing, and the question its sponsors must answer before these persons will look upon it with enthusiasm is, "What is the use of it?" The following analysis of the results of a group test in one school may possibly help to answer that question.

In November, 1920, the Terman Group Test was given to all the students of the Palo Alto Union High School. At the same time an estimate of the work of each student in each subject was given by the teacher in charge. These estimates were to range from 1 (high) to 7 (low); but the results showed no estimate below 6. The tests were scored and checked, and the estimates averaged. Then scatter diagrams were made, showing the test scores on the vertical scale and on the horizontal scale the teachers' estimate of work. These diagrams show that while there is a tendency in the majority of cases for the low score to correspond to the low estimate of work and the high score to the high estimate, this correspondence does not always obtain. In a number of instances a high score for intelligence is accompanied by poor work, and in a few cases the reverse is true. The purpose of the study here reported was to seek an explanation for the case showing a wide difference between the test score and the average of teachers' estimates.

From the four scatter diagrams representing about five hundred students, forty-six cases were chosen from observation as being out of the direct line of relationship. These cases are indicated by circles

[1] At the time the present study was made, the authors were graduate students in the Department of Education, Leland Stanford Junior University.

with numbers or the letter *L* below them. Then the semester grades, given in February, were secured and averaged for each child. These semester grades, which ran from 1 to 5, were reduced to the scale of the former estimate, and marked on the diagram in such a way as to show any change in the teachers' estimate. The number under each dot has a corresponding number on the same line showing the average obtained in the actual semester marks.[1] The letter *L* under a dot means that the pupil left without completing the work. There was a general tendency in the case of those whose intelligence score had been high for the teachers' estimate to have more nearly approximated it by the end of the term. Strange to say, however, where the test score was low and the estimate high, the final grade tended to diverge even more. Another interesting fact was that of the forty-six cases chosen, nine, or nearly 20 per cent, had left the school without graduating, as opposed to 7 per cent of the entire school population that left without graduating. This fact alone seems to point to maladjustment on the part of these pupils. Two more have left since this study was made.

In the cases where the semester mark tended to bring the student into his proper place according to the Terman Group Test, the only problem was to find the explanation for the original error in estimate. The explanations were found to be typical of most misunderstandings that arise from lack of acquaintance between pupil and teacher. In Grade IX, Case 1 looked immature and seemed to act so; Case 2 was deaf; Cases 4, 5, and 7 were explained by the maladjustment caused by entering high school direct from a very different sort of school; and Case 6 was so shy that she gave the impression of sullenness. In Grade X, Case 1, a girl, was suffering from the effects of adenoids; Case 2 was young and shy; Cases 3, 4, and 5 were large, slow pupils. In Grade XI, Case 2, a new boy, stammered; and Case 3 has never completed the work of his grade on account of illness. In Grade XII, Case 1 had been doing a great deal of outside work during the first half of the semester, and had chosen for a companion a boy who was

[1] No. 5 in Fig. 1, No. 8 in Fig. 2, and No. 3 in Fig. 3 have no corresponding numbers because the semester work was not completed at the time of the investigation.

known to care nothing for his school work. Cases 2 and 3 were new boys, the first of whom had come in with a record for work broken on account of ill health; the second, with a speech defect and a very poor muscular control; Case 4 was in love and was, besides, a very impractical sort of boy; Case 5 was a loafer with outside interests. These cases needed no further investigation as

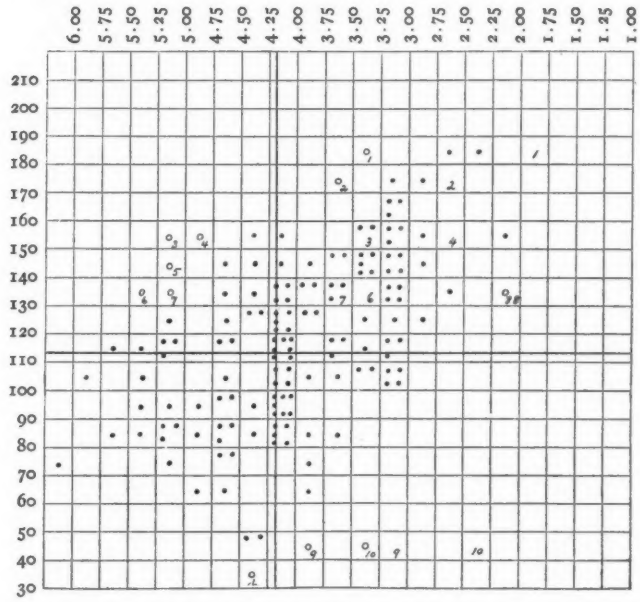

FIG. 1.—Distribution of Grade IX students on the basis of Terman Group Test scores and teachers' estimates.

the semester mark tended to correct the former estimate, and the explanation of the original discrepancy seemed satisfactory.

Where the mark failed to approximate the test score, further investigation was made. The estimate of teachers after three months of work in the second semester was obtained on work, intelligence, and class attitude, and an effort was made to find out as much as possible from the school concerning the personality and standing of the pupil. In many instances a Binet individual

test was given, partly to check up the group test score, partly to give a chance for a personal interview with the student in question.

It was noticeable, in dealing with the cases whose test scores ran considerably higher than the school mark, that the attitude of the pupil as interpreted by his teachers was never entirely satisfactory and in some cases was very bad. It was also noticeable that these cases were recognized as school problems. "You are asking about students who have bothered us a great deal," we were told more than once.

In Grade IX, Case 3 represents a boy seventeen years and six months old, test score 154, grade average 3.25. He was not interested in his work, smoked a great deal, and finally left this school to go back to a school he had previously attended.

In Grade X, Case 6 represents a boy fourteen years and nine months old at the time the test was given. He scored 157. His semester mark was 4 and his present average of work, 4.25. This boy's I.Q., as shown by the Binet test, was slightly over 110. His class attitude was bad, and he was disliked by his teachers. It was not difficult to see why. The boy's appearance, unattractive because of a very bad complexion, was made almost repulsive by his slovenly and dirty clothes. He was quite uninterested in his work and found his chief joy in driving his father's machine at breakneck speed. He gave one the impression of an overgrown boy who would find himself in time. He had a sister in Grade IX (Case 8) whose score was 134, but whose semester mark was 2. Case 7 in Grade X represents a boy fifteen years and seven months of age, testing at 157 and making a final mark of 4.75. He was obviously lazy and has since left school to take up part-time work. Case 8 represents another lazy boy who has never completed the work to make his grade. He himself declared that his greatest enjoyment was dancing. Case 9, age fifteen years and one month, score 142, and semester mark 4, is a girl with many outside interests. Her mother is sick and she has to tend to the household. She is also ambitious socially. Case 11 is a girl whose present work, according to her teachers' estimates, tends to approach her ability as shown by the score. She was only fourteen years and two months of age when she took the Terman test, but was a big over-

grown girl, looking much older than her real age. Her parents are both college graduates, interested in her work. A Binet test shows her I.Q. to be 117, and there is no reason why she should not do satisfactory work now that she is becoming somewhat better poised.

In Grade XI, a boy of eighteen years made a score of 181 and, when given the Binet series, passed all the tests. Yet his work is

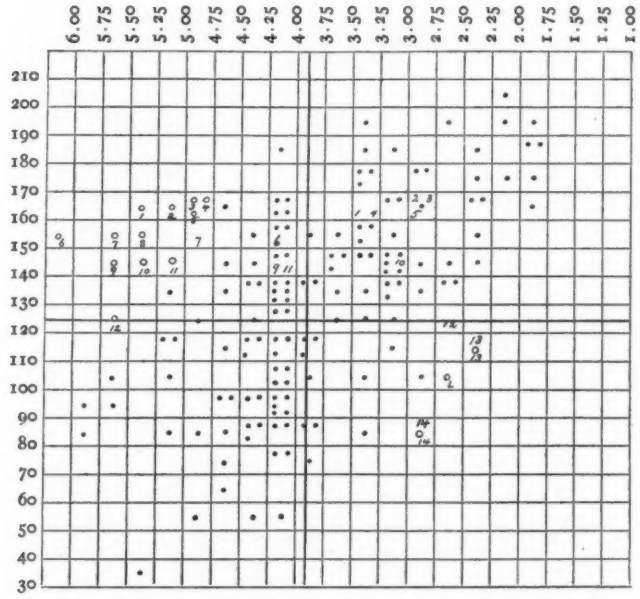

FIG. 2.—Distribution of Grade X students on the basis of Terman Group Test scores and teachers' estimates.

only average. He is a well-mannered quiet boy but peculiar looking because his face is asymmetrical. For some reason he had made a rather unfavorable impression on his teachers who referred to him as queer without being able to explain exactly why they described him in this way. From his own account, he had a great deal of outside work to do as he managed a two-acre apricot orchard alone. He also said that he had only recently begun to realize

that it was worth while to study. He is particularly interested in electricity.

In the cases of low score and high grade, we gave a Binet test whenever there was any doubt of the group test score. But in practically every case the Binet score tended to verify the group test score; hence it was necessary to look for an explanation of high marks to factors other than intelligence. In Grade IX, Case 9 represents a girl fourteen years and six months old when she took the test, who made a score of 45. Yet the estimate of her work was 3.8 and her semester mark, 2.9. Here the group test score seemed to be in error, for the girl confessed that at the time she took the test she was very much frightened, as she had been told that it would affect her grade mark. During the Binet test she was entirely at ease and declared she enjoyed it. Yet, according to it, her I.Q. is 88, a proof that she is distinctly dull. She is an earnest white-faced wisp of a girl who works exceedingly hard and has won the admiration of her teachers by the perseverance with which she not only pushed through her own work, but also enabled a nearly feeble-minded brother to carry the work of his grade. (Case marked *L* in Grade IX; score, 30; average, 4.25). This brother has now gone into an agricultural school. Case 10 in Grade IX is somewhat similar to Case 9. The boy in question made a test score of 42 and a final grade of 2. He is good-looking and pleasant-mannered. His afternoons are spent working in a store and his evenings in study. By the industrious use of every minute, he manages to spend from one to two hours on each lesson. He disliked the group test exceedingly and felt that it was a ridiculous measure of intelligence. On the other hand, he felt that the Binet test measured him fairly. Yet his I.Q. was 89. Here again unusual industry has in a measure overcome lack of ability. Then, too, this boy is nearly seventeen, and his greater maturity counts in his favor in the grade of work he is doing.

In Grade X, Case 12 proved rather interesting from the fact that the subject, a girl of average ability according to the score, was first marked too low and then too high. She started in as a new girl in the fall and worked hard. Her father is an important

member of the community with a great deal of political influence. The girl's attitude is excellent, and there is every reason why her teachers should wish to think well of her ability. Grade X, Case 13 is a Chinese boy who works very hard and whose attractive appearance helps to make his teachers tolerant of his language difficulty. His test score, 112, showed fair ability and probably

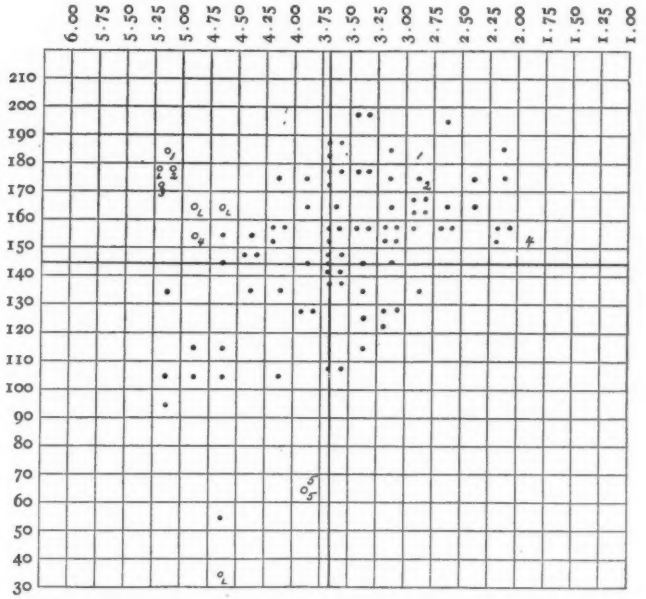

FIG. 3.—Distribution of Grade XI students on the basis of Terman Group Test scores and teachers' estimates.

did not show his full powers. The Binet test which gave him more time and would perhaps be a fairer test showed his I.Q. to be 98, and as he is over twenty years of age, his mentality is quite sufficient explanation of his grade of 2. Case 14, with a score of 83, made a semester average of 3, and her present average for the second semester is 2. Here, too, the Binet test corresponded rather to the Terman Group Test than to the teachers' ratings, for she is fifteen years of age with an I.Q. of 95. But here again

a very attractive appearance plus a conscientious, earnest disposition and an excellent attitude toward work produce the impression of solid worth. High marks naturally follow.

In Grade XI, Case 5, with a score of 63, has an estimate of work of 3.7, only a step below average. A more detailed examination of her marks reveals excellent work in household arts, which tends to raise the average of rather poor academic marks.

Grade XII, Case 8 shows the same situation, a test score of 77 and a semester mark of 2.25. But the subjects taken were art and typewriting, and the girl was considered dull by the school. Case 7 is a foreigner, a Filipino. One other case in Grade XII, Case 6, showed a good score, 163 and a mark of 1.25, the highest average in the school. The girl in question is a faithful student, seriously crippled, a girl whom everyone likes, admires, and pities.

In summarizing the details of this investigation, it was found that the same explanations again and again accounted for divergences. In the instances where the semester marks tended to correct the term estimates in relation to the test score, the trouble lay in lack of adjustment on the part of the pupil to new conditions or to a physical defect of one sort or another. In the instances where the semester marks did not correct the estimate of work, if the test score was high and the estimate low, there was an impression of either a character defect or outside interest. When the test score was considerably lower than the mark, the explanation lay in the unusual force of character, the charm of the students, in the fact that the pupils were foreigners and so had difficulty in the test from ignorance of the language, or in the selection of vocational, handicraft subjects.

Of the cases chosen, twenty-six showed more ability in the test than their school work indicated, while the school marks of ten were higher than the test score in any case would predict. In every case where the Binet test was given, the findings tended to approximate those of the group test.

What, then, is the value of this study? With large classes and short terms, the best of teachers make many mistakes, some of which are corrected by the end of the term. Here in certain

group tests is a criterion, the accuracy of which has been proved to be fairly reliable. While the tests may possibly underestimate the ability of certain timid pupils, they do not overestimate ability. The reason discovered in this high school for poor work in spite of good ability could in each case have been overcome if the teacher

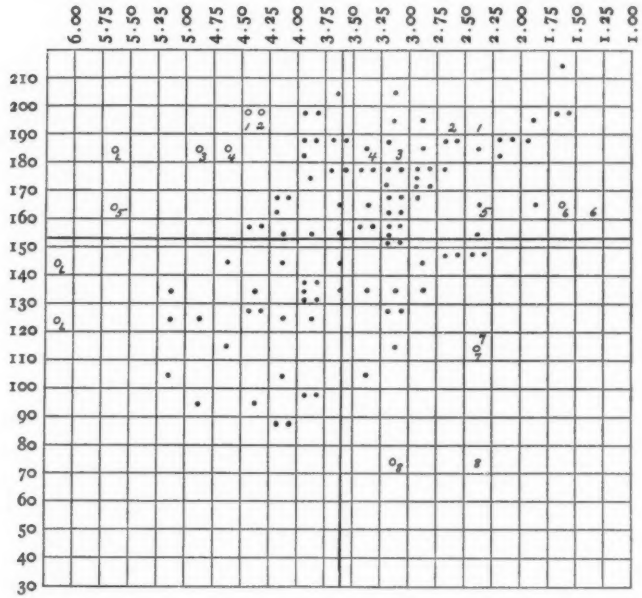

FIG. 4.—Distribution of Grade XII students on the basis of Terman Group Test scores and teachers' estimates.

had been sure that the student was capable of doing more work. On the other hand, the realization that a pupil does good work in spite of mediocre intelligence gives one a chance to praise and encourage a character of unusual worth. Surely if a group test of mental ability which can be given in forty minutes will give to high-school teachers a short cut to an accurate knowledge of what they have a right to expect from their students, mental tests have proved their value in the school and teachers will continue to use them.

A STUDY OF CURRENT PRACTICE AS TO PARENT-TEACHER ASSOCIATIONS

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This study of parent-teacher associations was undertaken largely from the high-school point of view. Although interested in gaining a general knowledge of current practice in this field, the writer was especially anxious to obtain the reactions of experienced administrators as to the desirability of parent-teacher associations in high schools.

Material for the study was obtained by personal conferences and by a questionnaire which was submitted to students in the School of Education of the University of Chicago during the summer quarter of 1921.

Data were secured concerning fifty different schools and school systems located in twenty-one states. The states represented in the study, with the number of schools reported for each, were Arkansas 1, Florida 2, Illinois 4, Indiana 5, Iowa 5, Kansas 6, Kentucky 3, Michigan 1, Minnesota 1, Mississippi 1, Missouri 1, Nebraska 3, North Dakota 1, Ohio 2, Oklahoma 1, South Dakota 1, Tennessee 2, Texas 4, Virginia 1, West Virginia 1, Wisconsin 4.

By considering as cities those communities large enough to have a high school separate and apart from the elementary schools, and as villages those communities in which the whole school system is housed in one building, these fifty schools and school systems were found to group themselves into eight distinct classes according to the plan of organization of the school system and the type of association, if any, that is maintained: three city school systems with parent-teacher associations in each elementary school and high school, and with a central association or council composed of representatives of the various associations; seven city school systems with parent-teacher associations in each elementary school

and high school, but with no central organization; twelve city school systems with associations in elementary schools, but not in high schools; thirteen village schools with associations for the entire building; eleven village schools which do not have parent-teacher associations; one township high school which has an association, one city school system which has only the one general association for the entire city; two private secondary schools, neither of which has a parent-teacher association.

From this classification it will be seen that all cities represented in the study have parent-teacher associations in some form. The only school systems reported which do not have such an association in any form are village schools. However, this investigation is probably not of sufficient scope to warrant any general conclusions on this point.

Especially interesting are the reports from the cities of the first group mentioned, those having a general council composed of representatives of the various local organizations. They probably represent the direction in which the development of the parent-teacher associations will move. The following comments were made by the persons reporting for two of these cities:

> Our state president is a former teacher in the local schools, as is also the president of our general association; so parent-teacher association work just "hummed" this past year. Playground equipment, pianos, and other furniture have been provided by our organizations. They are indeed active, without being meddlesome. As an outcome of the great interest manifested, a fine spirit of co-operation exists between the schools and patrons.
>
> Last year the Federation of Mothers' Clubs chose as their most important work the improvement of teachers' salaries.

To one especially interested in the question of parent-teacher associations in high schools the facts obtained in our study are not altogether reassuring. It will be noted that out of the twenty-two cities from which reports were received, twelve do not have parent-teacher associations in the high schools.

In order to obtain expressions of opinion as to the desirability of these organizations in high schools, the question was asked: Do you favor parent-teacher associations for high schools? The answers are summarized as follows: City school systems in which

the high schools have associations—yes, 5; no, 1; depends, 2; no answer,2. City school systems in which the high schools do not have associations—yes, 2; no, 8; depends, 2. Village schools which have associations—yes, 10; depends, 2; no answer, 1. Village schools which do not have associations—yes, 3; no, 1; depends, 4; no answer, 3.

Those representing cities in which high-school parent-teacher associations are successful organizations do not enter upon any discussion of the problem. Possibly this would indicate that to them it is no problem. But from the representatives of cities which do not have an association in their high schools some suggestive comments were received.

> Very good thing for the elementary school. Poor for high school.
>
> We have fairly successful associations in all the ward and junior high schools, but it does not seem to work in the senior high school. At least, it has not been successful in our town.
>
> For elementary schools I think the parent-teacher associations can do a fine work and are a good thing. This is because the unit or school district is relatively small, and also the parents are always intensely interested in the work of their small children, and the smaller children like to have their parents visit the school and see them in their work. On the other hand, the high-school territory is so much larger, and high-school students do not like to have their parents come to see them at their work—as a matter of fact, parents do not do it, generally speaking. It is hard work to keep any parent-teacher organization going in the right channel, and especially does it require an enormous amount of effort to keep one going in the high school.

Certain of the questions asked require little or no comment further than the tabulation of answers. These questions, with a summary of the answers in each case, will be presented in order.

Is attendance on the part of teachers compulsory? Yes, 3; no, 34.

Should such attendance be compulsory? Yes, 11; no, 25; not unless it is for parents also, 1.

Do you charge dues? Yes, 23; no, 10; no answer, 4. Monthly or yearly? Monthly, 4; yearly, 19; no answer, 14. Amount per year? Very few answered this question. The only amounts named were $0.25, $0.50, and $1.50.

When do you hold meetings? Afternoons, 15; evenings, 15; both, 7.

Is your association affiliated with a state organization? Yes, 13; no, 19; don't know, 3; no answer, 2.

Do you have good attendance of parents at meetings? Yes, 17; no, 6; fair, 13; no answer, 1.

Please list any devices you may use for stimulating attendance. Rather few responses to this request were received. This would seem to indicate that not a great deal of thinking on this question is being done by school officials in general. However, some interesting plans were reported.

In one grade association a mother acts as hostess at each meeting. She works with the domestic science department in the preparation of refreshments. For one meeting special programs were printed by the commercial department and sent to the mothers with the request to reply.

A pennant is given to the room which gets the most mothers to attend the meeting.

It has never been necessary to stimulate attendance. If people seem to lose interest, the daily newspapers give us space.

The grade having the largest percentage of parents present keeps the school banner until the next meeting.

Put children on programs.

"Furnish refreshments" seemed most popular. Speaker of special note.

Do pupils ever furnish programs or parts of programs? Yes, 36; no, 1.

Are refreshments served at meetings? Yes, 21; no, 5; sometimes, 11. If so, who does it? Parent-teacher association, 18; domestic science department, 6; school, 3. How is it financed? Parent-teacher association, 22; board of education, 2; school, 5.

If possible, suggest types of programs which you have.

The afternoon meetings are business meetings; the evening meetings consist of programs of various sorts.

Consider such subjects as the textbooks, the boy, social life for boys and girls, parents' idea of good teaching, teachers' idea of good teaching, and the movies.

New things in literature, science, etc. Cultural idea uppermost.

Besides music, about two questions of vital importance are discussed by a patron, followed by a general discussion in which parents and teachers participate.

Speakers, e.g., an attorney, prominent business man, physical director from outside city; local programs, etc.

Business session, music, a good reader, a speech. Serve punch and get acquainted.

Parents, pupils, and teachers plan and give programs.

Exercises by grades; talks.

Relationships between school and homes, board and school, and teachers and community are discussed.

Health, child welfare, educational films.

Health of children; local matters.

Art, music, and textiles discussed by outside speakers.

A committee is appointed to make out programs for the whole year and arrange for a speaker on some vital educational problem at each meeting.

Each meeting has a definite school or community need as the subject.

Pupil programs which are the result of some project.

Please list definite activities of your association or associations for school or for general community betterment.

Bought three victrolas last year.

Run the school cafeteria.

Attendance; along social lines.

Advertise building bonds; clothes for needy children.

Playground improvement.

Parent-teacher association held a function for senior and junior classes and their parents. There was a musical program given by students and dancing. This was followed by a Freshman-Sophomore function.

Health crusade, thrift, and dress reform have received much attention.

Weighing and feeding pupils; fitting up restrooms in some of the grade buildings; attempting to have gymnasiums for physical education in grade buildings; playgrounds, etc.

They purchased a moving-picture machine. They select films. They keep weights of the children—a big job. There is a lunchroom committee to advise concerning lunches. First-aid supplies not bought by board. Entertain graduating classes. Furnish automobiles when needed.

The parent-teacher association for each separate building decides upon some definite object of general interest to which to devote its work of the year. For all new buildings the association always takes for its field of work beautifying the grounds and building. They see that grass, flowers, and trees are planted and cared for. Several associations last year had exhibits of works of art. Admission was charged, and the money was used to buy good pictures for the schools. These exhibits were sent from New York and Philadelphia.

They give, manage, and furnish refreshments for high-school dances and other high-school social events. Give aid in athletics. Made blankets for football boys. Helped fix up athletic field.

Established fund to furnish food for indigent children. Contributed money toward carfare for certain children. Contributed money for school decoration. Conducted campaigns for cleaner city.

Purchased moving-picture machine; athletic field equipped.

Furnishing of restroom, library, supplying supplementary readers; malnutrition and milk campaigns; beautifying school grounds; moving pictures Friday nights; offering incentives for good scholarship and attendance, etc.

Playground equipment, lockers, library, pictures; piano movement started.

Playground equipment; library; garbage cans for campus.

Got better janitor service; had buildings wired.

Please make any comment on the general question of parent-teacher associations.

Very necessary organization.

I am passive on this subject.

It depends upon the community largely. If left entirely to the teachers, it is a farce. When there is no unifying interest to make the patrons of the school forget cliques and factions, social strata, and politics, the association should cease to meet. Its main value lies in serving as a means for acquaintance among all.

I think I have the largest parent-teacher association in the South, about four hundred members. I keep them busy.

We are going to organize this fall. We shall be glad to have the information secured through this questionnaire.

I think parent-teacher associations can be very helpful in creating the right relationships between teachers and parents. The parents feel that they have a greater interest in the school when they are members of an association of this kind.

Fine, if kept out of politics or of attempts to run the school. Have to keep them busy.

Parent-teacher associations are very helpful.

O.K., if properly safeguarded. They put one on his mettle, but are not necessarily meddlesome.

Principal or the superintendent must keep his hand on the work. See that the proper people are elected as officers and the proper people are put on committees.

Splendid for the school, but not all the teachers care for them.

Such an organization can be made very helpful to any school district.

Unless a superintendent has a very definitely worked out program, he had better have none. It is a fine opportunity for meddlers.

The parent-teacher associations have worked wonders in this city. If the school board forgets to make necessary repairs on old buildings, or is neglectful in regard to the best conditions of light, heat, and ventilation, they hear from the parent-teacher association at once.

The facts presented in this study seem to warrant the conclusion that a parent-teacher association can be made a most valuable and

thoroughly desirable organization in practically any high school or elementary school, if it is regarded as a responsible agent in the direction of definite school and community activities. The recent statement of one man who has a national reputation in the field of school publicity work is significant in this connection.

I have two suggestions to make which I think should prove most valuable to any school administrator. The first is that the parent-teacher associations should be kept busy doing things which they can do better than any other agency, such as purchasing pictures, phonographs, high-class records, moving-picture machines, furnishings of various sorts; beautifying the grounds; and a host of other things which might be mentioned. It is equally as important that the administrator shall by using sufficient tact steer the associations away from concerning themselves with problems which cannot be solved by such organizations and which must be referred to experts in the field of education. I would mention under this head such problems as curriculum changes and questions of school policy which in general require the careful attention of specialists for their solution. My second suggestion is this. A number of superintendents have found that a most valuable device for stimulating effort on the part of parent-teacher associations is to foster a rather keen rivalry between the organizations in the various buildings. Each association is kept informed as to what the others are doing. It is a good plan to have each association submit an annual report. The citizens of a given community are simply going to have too much local pride to allow their association to do nothing and thus have to present a blank report.

TEACHING A STUDY-HABIT. I

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A professor of education who is known to be interested in supervised study recently received an appeal from a high-school teacher. It was to this effect: "Can you send me by return mail the names of two or three books on 'How to study'? I want to give them to one of our graduates who is going to college." The tone of the letter showed that she thought the case was urgent. There must be no delay or the student would be crippled in his future work.

Here is a realization of a need—an acute realization. But while the teacher who sends a pupil to college with her blessing and a copy of rules for study manifests a laudable interest in the student, she is not providing him with the best possible equipment for success in his college work. It is surprising that anyone could think that a list of study-habits or a statement about how to study could take the place of systematic training in study-habits during the child's elementary- and secondary-school life. And yet, the case of this well-meaning teacher is not as extreme as it first appears. Of course, there are many who do not appreciate the need of calling to the pupil's attention the advantages of economical study-habits. There are more who do appreciate the need of doing something in this direction, but who have dealt with the problem in only a superficial manner.

Many of the teachers who smile at the naïve idea of waiting until the pupil packs his trunk to go to college to give him a copy of rules for study have done only a little better. They have given the pupil the rules for study at the beginning of the course, but they have failed to follow up a good start with systematic teaching. There can be no objection to giving to the pupil one of the excellent available sets of rules or directions for study at the beginning of his school course. In fact, it is as desirable to give a preliminary survey of the habits to be developed during the course as to give a

general notion of the information that is to be acquired. The fault lies in not planning to give definite training in the habit and in not making the pupil realize that his progress in the course is to be measured in terms of improvement in study-habits as well as of gain in information. These teachers have chosen a better time to bring important study-habits to the attention of their pupils, but they have failed to distinguish in their practice between telling pupils about rules for study and teaching study-habits. It is futile to hope for a very great change in practice, based on the recognition of this distinction, until teachers are given more detailed suggestions for teaching a habit and are led to see by testing their own pupils' habits that mere telling will not insure the desired results.

There are many other teachers who see the inadequacy of both the first and second plans for helping pupils. They have definitely tried to satisfy the need of the pupil by having organized supervised study. They are teaching in a school system that recognizes the teacher's responsibility for teaching study-habits by setting aside a certain period in which the teacher is expected to give her whole time to observing and helping pupils as they work. But, unfortunately, this explicit recognition of the needs and the excellent opportunity to give wise guidance and help has not secured the expected results. The whole organization of their school points to the need and emphasizes the importance of continuous attention to study-habits, but too often the teachers have not been trained in the *technique* of teaching study-habits.

Supervised study as such is comparatively new in our schools. In many places ambitious principals and superintendents have adopted it before their teachers have developed the point of view of supervision of study and seriously considered its technique. Incidentally, administrators might well afford to put more time and thought on the technique than on the administration of supervised study. There is much evidence that supervised study would be introduced into more schools and come nearer realizing its ends and justifying its greater costs if the teachers had a better conception of ways and means of helping pupils to form good study-habits. It is not fair to pass judgment on the value of supervised study in a given system or on supervised study as a new point of emphasis

in our theory of teaching until more teachers are familiar with the best technique of such supervision. We want teachers to feel a great responsibility to their pupils in the matter of teaching good habits of study. But they must also have a more intelligent understanding of the detailed means by which they can accomplish these aims. It is not enough merely to supply pupils with lists of rules for study. That is failing to distinguish between telling pupils what they ought to do and teaching them to do it. It is not enough to provide a special period each day in which their study-habits are supervised. That step will be futile unless teachers use the time to the best advantage.

It is the purpose of this article to make some distinctions that have been frequently overlooked and to formulate and illustrate some important steps in teaching any given study-habit. A teacher may take one of two attitudes toward the development of study-habits. She may assume that a diligent, conscientious student will incidentally and purely by chance develop the most economical habits of study if he works faithfully in mastering a school subject. On the other hand, it may be assumed that more pupils will form good study-habits if provision is made for their systematic training in such habits.

The people who have accepted the former view have failed to take into consideration the complexity of most study-processes. They would not for a moment contend that mere interest and perseverance in golf or music would bring about a development of the highest technique in these lines. It is commonly recognized that the form in either is so involved and complex that the learner may accidentally hit upon some awkward or wasteful practice, make it automatic, and thus handicap himself for attaining a high degree of skill. If a learner in either field should ask such a teacher, "What can I do to improve?" there would be a recognition of the possibility of poor technique, and the learner would probably be advised to get help from someone who thoroughly understands the process to be learned. Yet the same teacher, when asked by a pupil the same question in connection with a school subject, will probably say, "Try harder" or "Work longer," overlooking the fact that she may be urging the pupil to fasten more firmly upon himself bad habits of study.

We are concerned here with the teacher who recognizes the complexity of the study-process and who accepts full responsibility for teaching mental habits as well as for giving information and testing pupils. It should also be clearly understood that in this article we are concerned as much with the teacher who is directing study, by giving specific suggestions concerning habits of study in regular assignments and recitations, as with the one who is formally supervising study during a special study period. It is our contention that in either case the starting-point in the teacher's preparation is the consideration of the teaching of separate habits. The wording of the title will be more significant in the light of this statement. If we would have teachers who are capable of directing study-habits or supervising study-habits, obviously they must understand the methods by which they will be able to teach a single given habit. Experience shows that teachers may be thoroughly prepared in subject-matter, fairly conversant with the underlying psychological principles of learning which are involved, and experienced in ordinary classroom teaching, but have little conception of how to proceed in teaching a single study-habit.

The average teacher is rather disconcerted and very vague in her answer when you ask her to what extent her pupils have a certain study-habit, such as picking out the important point, raising questions during study, or making mental cross-connections. She knows how to test results in terms of information, but not so much about finding what methods of study are being used habitually by her pupils. Many teachers are just as much confused when asked to make out a plan for teaching a given study-habit. They have read and heard a great deal about good methods, but for the most part they choose their method of making assignments or their plan for recitation on a given day without reference to the effect upon the pupils' study-habits. Obviously, different methods should be used with classes that have quite different weaknesses in study-habits, but there has been too little emphasis upon the importance of finding whether a class is using a certain method habitually, and upon the means of training them in that particular method.

When we start with a given method of study and plan to teach it, whether in directed or supervised study, we may use two very

different methods of procedure. For instance, we may try to teach pupils to form the habit of raising questions or making mental cross-connections by planning the work so that this will become the regular practice of the pupil. We may arbitrarily call this method the *indirect* method. Here the pupil is entirely unconscious that he is forming the habit. On the other hand, the pupil may be told that the formation of this habit is an important part of the term's work. He may be shown the advantages of forming it and may be tested in his progress in it from time to time, so that he comes to realize in a practical way that progress in the course depends on the development of that habit. This may be called the *direct* method of teaching a habit. In it the pupil has a conscious habit aim and comes to assume some personal responsibility for learning the desired habit.

The indirect method will not be treated in more detail here until after a fuller discussion of the direct method. The direct method presupposes ability on the part of the teacher, first, to differentiate in a clear-cut way between the better and the less economical methods, second, to explain and demonstrate the advantages of the method to the pupil, third, to prepare drill material to develop this habit, and fourth, to test the pupil's improvement in methods of study.

Why should a teacher who confidently expects to influence study-habits in the regular assignment and recitation, or in the special period for supervised study, be confused when you ask her to start with a given study-habit and formulate plans for teaching it? When we ask teachers to influence study-habits without giving them preliminary practice in planning to teach a single habit, is it not much the same as if we asked them to conduct an orchestra without being able to detect mistakes in the case of a single instrument? In both cases there is a very complex situation; a defect in the whole must be traced to a defect in one part. In order to do this, one must know the elements separately before they enter into the larger complex. Yet many teachers have tried to supervise study-habits in complex settings and in large groups before thinking their way through the detailed means of developing a single study-habit.

THE DIRECT METHOD OF TEACHING A STUDY-HABIT

If one starts out to teach an individual or a class a particular study-habit, it will be found that there are certain steps that will be useful in practically every case. There are other steps which may not be so necessary in some cases. The following list is merely suggestive. There is certainly no intention of implying that they should be used formally or in the given order, or in every case. (1) Find to what extent and how well the class as a whole uses the habit. (2) Bring the particular habit to the pupils' attention. (3) Get those who do not use the habit to realize that they do not. (4) Tell them the advantage of using it, illustrate it, and as far as possible demonstrate its value. (5) Give specific emphasis and drill on it in the regular daily work. (6) Provide means by which the pupil may note his own improvement in the habit.

Illustrations of most of these steps will be given and a statement of the value of each will be made. In giving these illustrations, some chance contrasts between the direct and indirect method of teaching a study-habit will be introduced.

Teaching the habit of rewording questions.—This habit is as truly a study-habit when questions are asked in class as when study-questions are given as a basis for the preparation of a lesson. As teachers have come to use a greater number of thought questions, they have found that pupils who really have the underlying information are not always able to formulate the answer at once. If the teacher has time, she may help the pupil to help himself. She may do this in many different ways. Probably the most common ways are to reword the question and to break it up into questions which the pupil may answer and which will serve as the basis for the answer to the original question. We will now assume that a teacher has decided to teach her pupils to form the habit of rewording or breaking up questions when the answer does not occur to the pupil after a moment's thought. If she uses the indirect method, the pupils will be expected to learn to do this for themselves merely because they have succeeded and have heard classmates succeed by the teacher's aid in answering questions which they at first seemed unable to answer. There is no doubt that this practice of teachers gives pupils more confidence in themselves. Instead of being self-confessed failures, the pupils usually get credit for knowing the

lesson. But is it certain that a pupil who is helped and who hears others helped every day by these methods will learn the habit of doing it himself unless the teacher specifically calls his attention to the means of help and the possibility of forming the habit of helping himself?

In calling the pupil's attention to the habit and indicating some of the advantages, the teacher might choose some time, when she has just helped the whole class to get started in answering a question which they could not answer at first, to say, "There are a great many times when you think you cannot answer a question in class. If I have time and feel that you need encouragement and more confidence in yourselves, I help you so that you really make a pretty good recitation. But what are you going to do in the examinations when the rules of the game do not allow me to help you to get started? Many pupils, when they cannot start at once on an answer, are just 'quitters' (you know what we all think of a quitter in football). Others know ways or have habits of getting started by themselves. If you had the same habits, you would get credit for satisfactory answers to many questions where you fail without these habits. Would you like to learn how to become self-starters? You wouldn't give very much for an automobile these days without one. How do I help you to get started in recitations?" Several of the class may be able to tell some of the ways, though many of them would never have thought of them if the question had not been asked. While the idea is in their minds, further illustrations may be given to be sure they all know what is meant and to give them assurance that this habit will help them out of many tight places. During the next few days various plans should be used to remind them of the habit. When the next test papers are returned to the class for comment and discussion, the pupils can be reminded of the habit and asked to tell whether they used it. Some pupils who reworded questions may be asked to state the question in the language that helped them to get a start on the answer. Others may tell which questions they broke up and the simpler questions which they tried to answer first.

A list of review questions carefully chosen for drill exercises in rewording questions may be given the class to focus attention more clearly on the habit and to give some practice in it. The same

kind of practice can be given in breaking up questions. Here is a case in which the teacher's problem consists largely in calling the pupil's attention to the habit and keeping it in his consciousness.

The reader may think that pupils generally know that teachers help them to get a start on a difficult question by rewording questions and breaking them up. The following data indicate that pupils in general have not come to realize *how* teachers help them in answering questions. Eight hundred and ninety-two ninth-grade pupils in four cities were asked this question: "What are the ways in which a teacher can help you most in answering a question in class when the answer does not occur to you after a moment's thought?" This was one of six questions bearing directly or indirectly on their understanding of study-habits. Though they were allowed as much time for the answers as they needed, these pupils did not average one satisfactory suggestion per pupil. Yet every one of them had, no doubt, been helped in half a dozen different ways every week of the school year. Eight per cent of them mentioned "rewording the question," and 5 per cent suggested in one form or another the idea of breaking up the question.

A special form of the habit of breaking up questions is found in the solution of arithmetic problems and originals in geometry. It is the habit of asking, "What will I have to determine before I can find the required answer?" Let us consider the significance of the second step of the direct method for teaching this study-habit in mathematics. We will take a problem in arithmetic that involves getting partial answers as a preliminary step to the solution of the original problem.

"A man gets an annual salary of $2,200. He also receives annually interest from his savings amounting to $180. He pays an annual rent of $420. This is one-fifth of all his expenses for the year. How much does he save in a year?" Obviously, one of the best "starting" questions is "What will you have to know before you can find out how much a man saves in a year." Teachers very commonly and very properly insist on pupils repeating "what is given in the problem" and "what is to be found." It is not quite so common, when these questions fail, for teachers to use questions to direct the pupils' attention to the intermediate steps, working back-

ward from what is to be found. Without systematic training pupils are likely to begin to juggle the figures for given conditions, without having any notion of what they will do with the resulting sum or product when they get it. It seems logical to start to think about what we *can* find from the given conditions. If a problem gives conditions *a*, *b*, *c*, and *d*, and says find *m*, there are a great many combinations in which the given factors may be used. But the pupil is not gaining proper habits of thinking and is not getting his answer in the most direct manner unless he starts to consider what he must know before he can get the required answer. If he sees what his intermediate partial answers must be, his problem is broken up and it will be easier to see how to use the given quantities in the solution of the problem.

The difference between the direct and indirect methods of teaching this habit is very clear. If teachers do not call pupils' attention to the way they are led to help themselves, the pupils will think they are getting help in solving the particular problem or answering the particular question at hand. They will fail to see that the teacher's questions intended to help them start answers suggest a habit of procedure that will enable them to help themselves with other problems and other questions. The direct method of teaching the habit puts emphasis on ways of solving other problems and answering other questions. It is much more important to train pupils to help themselves by teaching them a method of procedure that will apply in many cases than to help them in a particular case.

Teaching the habit of making mental cross-connections.—One of the most important habits in silent reading is the habit of making mental cross-connections, recalling associated and related ideas during reading. The teacher may set up a conscious aim for forming this habit. She may ask such questions as, "Why do children who have traveled a great deal and who have lived in several countries find it easier to study geography?" "Why are books with many examples and illustrations easier to understand than those without?" "What is the purpose of the footnotes that remind us of something we have had before or learned in some other course?"

With questions and illustrations the teacher can get pupils to see the difference between reading between the lines (filling in new meaning) and simply trying to fix the language of the author in mind. If the teacher is definitely planning to teach pupils this habit, she will find many opportunities to show pupils that the understanding of the day's lesson will be better if the pupil is reminded of similar or related facts during the study of the lesson. Pupils will realize that a clear understanding means greater certainty of recall when there is need for a recall of the given fact. Now this is not an unheard-of method of study for most of our pupils, but it is our contention that telling about the habit lacks a great deal of teaching them the habit. It is usually very helpful for the pupil to believe that the new method of study is better than the old method (hence the importance of the fourth step in the direct method of teaching a study-habit) in order to tide him over the period of discouragement that so often comes in changing any element in technique. Many of them will not try to form the habit until they are convinced that they are below the average of the class in their use of it (step three) and that there is really a big difference between results when you use it and when you do not. A further motive will be provided if the pupils are made to realize that the formation of this habit is an important part of the term's work and that their progress in the course (their mark) will be gauged partly in terms of it. Then you have some assurance of an earnest effort. An exercise in testing the ability of pupils to make mental cross-connections may serve to illustrate a method by which the teacher will be able to bring the pupils to see the advantage of developing this habit.

The teacher explains and illustrates the habit to the class, showing opportunities to use it in studying the regular text. Previously, she has chosen some passage of two or three pages from their text that offers good opportunity for recall of related ideas. Before the pupils start to read the passage, they are told that they are to make a list of things that are suggested to their minds by what they read—things that would help the average reader to get more meaning and better associations from the passage. The teacher makes a little play on the phrase "that reminds me."

They all know the story teller who is constantly reminded of another story or the good conversationalist who is usually reminded of some similar or related incident. When she is sure they understand clearly the kind of thing they are to write down, she directs them to number the lines on a sheet of blank paper. She tells them to put a small index number as they read at every point where they recall some related idea, i.e., whenever they are reminded of something that illustrates, explains, or adds to the thought. Then before they continue reading they are to write down the recalled idea, using just a word or phrase opposite the corresponding number on the sheet of paper. After this process is illustrated by the use of a passage from another part of the book, the pupils follow the directions, reading the selected passage. The teacher should have prepared in advance a list of ten of the cross-connections which she thinks will be most commonly made by the pupil. She should tabulate the results in two ways. First, check each student's paper for satisfactory cross-connections, recording the total number; then make a class distribution of these totals. In this way she will know how many people had three, four, five, nine, or ten satisfactory cross-connections. Secondly, make tallies showing the number of pupils who mention each of the ten cross-connections she had in her own list. Results from several classes in several subjects show that the difference in pupils' ability to make mental cross-connections is very marked. Most teachers who have given the exercise to their classes have been much surprised at the limited number and character of the cross-connections made. It will be observed that this is not strictly speaking a test of the extent to which they use the habit of making mental cross-connections. It is rather a test of whether they *can* do so when they have their attention directed specifically to it. The significance of the result lies in the fact that they have trouble in doing it even then. This is fairly good indirect evidence that they do not habitually do it when they study.

It is certainly time for the movement in supervised study and "how to study" to develop tests of pupils' use of some of the economical and desirable methods of study. Standardized tests at present show the results of study but seldom determine whether

the pupils used a given study-habit. Teachers need a variety of more informal ways of testing pupils in methods of study that can be used in regular daily work.

Not only this phase of the direct method of teaching study-habits but every other phase offers a real problem for the teacher. We cannot ask the busy classroom teacher for a greater sacrifice of time and effort. If she can get more definite constructive help in the actual technique of teaching study-habits, she will be able to shift her emphasis and reap some of the satisfactions that have hitherto been denied her. She has a right to expect more of such help from professional courses, supervisors, and professional literature.

[*To be concluded*]

Educational Writings

REVIEWS AND BOOK NOTES

Subsidies for prospective teachers.—The problem of supplying sufficient teacher recruits from year to year to meet the demands set by rapidly increasing enrolments in public elementary and secondary schools and by withdrawals from the profession, is one which promises to tax the ingenuity and the resources both of the institutions engaged in the training of teachers and of the school systems or officials requiring their services. Since the war has rendered the situation more immediately acute, frequent discussions of the problem have appeared in the periodical literature, some offering opinion with reference to causes or effects, others venturing suggestions bearing on possible measures of relief. While these discussions may have the obvious value of keeping the problem constantly in the public mind, many of them suffer from the equally obvious defect of emphasizing immediate considerations to the exclusion of certain practical principles which must underlie any ultimately stable plan for the continued maintenance of an adequate corps of competent teachers for all types of public schools.

Among the proposals more commonly set forth as a means of keeping the schools supplied with trained teachers are increased salaries, improved social position, longer tenure, more institutions for the training of teachers, supervisory schemes for the training of teachers in service, and subsidies for worthy individuals during the period of institutional preparation for teaching. One of the late publications[1] dealing with the problem, arguing that no single plan so far proposed promises an adequate solution, seeks "to investigate the principles, problems, and practices involved in a system of subsidies for prospective teachers as one method of recruiting the profession" (p. 23).

As a basis of possible justification of a plan of subsidies for recruiting teachers, the author presents a survey of the teacher population in the states of Missouri and Montana, a study of the student body in teacher-training institutions, and an analysis of the cost of normal-school education. This survey reveals conditions which, it is assumed, will fully justify, if they do not demand, the establishment of a system of state subsidies as a means of checking certain alarming tendencies which are manifest. Four of the six summary

[1] WALTER SCOTT HERTZOG, *State Maintenance of Teachers in Training*. Baltimore: Warwick & York, 1921. Pp. 144.

paragraphs concluding the discussion of this survey will indicate the phases of the general situation which the author interprets as calling for relief in the form of financial aid for those who are preparing to teach in the public schools.

> A study of the members of the teaching service in typical states shows that a large percentage of teachers, especially in the rural districts, are inadequately prepared for the duties of the profession.
>
> The statistics of the enrolment in high schools, colleges, and universities and normal schools, show that the profession of teaching is not attracting a sufficient number of recruits. It is significant that the numbers seeking higher education for other vocations are rapidly increasing.
>
> Inadequate attendance in normal schools is also accompanied by the admission of students of somewhat inferior ability as compared with those entering universities and colleges.
>
> The cost of normal school education is too great compared with the salaries of many rural teachers to justify the expense of adequate preparation [p. 5].

Further argument in support of subsidies for teachers in training is deduced from an account of the occasional practices reported for recruiting in industries and in other professions, and from observations concerning the experiences of certain foreign countries where such subsidies obtain. The criticism to be offered of this part of the discussion is that the author tends to make a relatively insufficient allowance for the influence of other factors which probably far outweigh any offer of a small, although an immediate, stipend in their appeal to the class of individuals who may be expected to render profitable service of any considerable duration in the profession of teaching. Again, it is assumed that the state is sufficiently protected against the designs of the fraudulent person by the pledge of service and the secured notes which are to be required of the individual receiving assistance. A casual reference to the experience of institutions which require such pledges, or a moment's reflection in the effort to formulate a plan of actually exacting such promises which would be effective in any American community, must reveal at once the absurdity of this contention.

A summary statement of the advantages and the disadvantages of any plan of subsidy for prospective teachers gives evidence of the author's willingness to have the proposal considered on its merits. Besides this, the book presents an example of the sort of analysis of the problem which alone can insure consideration of all the factors which must be taken into account in any lasting scheme for the effective recruiting of the teaching profession. Moreover, it is recognized that the plan urged does not in itself offer a full and satisfactory solution of the problems involved. The volume will therefore be appreciated by the school public for the spirit in which its proposal is made and will, it is believed, be found valuable both for the information it contains and for the discussion it provokes.

How children grow.—Recent years have witnessed a steady increase of public interest in the problems of children's growth and physical development.

This interest has manifested itself in such ways as the popularity of "better babies" campaigns and contests, the organization and expansion of federal, state, and local children's bureaus, and added attention to obtaining and preserving accurate physical records in public schools and colleges. This makes very timely Professor Baldwin's recent study[1] which is in part a report of the work of the Iowa Children's Welfare Research Station, of which he is director, and in part a review of the extensive literature on anthropometric measurements.

The volume will be of somewhat less interest to the casual reader than to the student and investigator; but for the latter it should serve as an indispensable guide, both to the practical work of measurement and to the literature of the field. A survey of the contents of the volume will suggest its purpose and utility.

1. A practical discussion of the technique of anthropometric measurement, with suggestions for standardized apparatus, and methods for making the twenty-three physical measurements and the six indices and computed measurements with which the study deals.

2. Studies of the rate of physical growth, based both on group averages and on continued studies of individual cases, and analysis of the relations between increases in various measurements. A considerable part of this presents the Iowa bureau's data. These studies and the comparative tables group the material into measurements of (*a*) infants, (*b*) pre-school children (ages one to six), school children (ages six to eighteen), and adults. The latter, however, are treated only incidentally.

3. Chapters on "Anatomical Age," based on Roentgenogram studies of ossification and growth of carpal bones, and on "Physiological Age" as indicated by the onset of pubescence.

4. A comprehensive, detailed, and well-organized "historic orientation" to the anthropometric literature.

5. Comparative tables, involving over five million cases, presenting in conveniently comparable form height and weight measurements taken from some hundreds of investigations.

6. A well-annotated bibliography of 911 titles, listing publications from every part of the world from 1528 to 1920. About one-third are from the past decade, and two-thirds from the past twenty-five years.

7. Tables for the conversion of metric units (which are used throughout) into English equivalents.

The material has been carefully organized and digested by the author, who presents his summaries and conclusions in sections conveniently interspersed throughout the text. Fifty-seven charts, twenty-four photographs, and forty-one tables (not including the elaborate comparative tables previously mentioned) aid in clarifying the presentation.

[1] BIRD T. BALDWIN, *The Physical Growth of Children from Birth to Maturity*. "University of Iowa Studies," Vol. I, No. 1. Iowa City: University of Iowa, 1921. Pp. 411.

While there is no formal index, the orderly arrangement of the material, the detailed table of contents, and the very thorough cross-indexing of tables and discussions make it easy for one acquainted with the general make-up of the volume to use it for a reference manual. The study will be welcomed by educators, physicians, anthropologists, hygienists, and social workers as a most comprehensive, convenient, and practically useful summary of, and addition to, the literature of child development.

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Experimental studies in efficiency.—Various studies of the achievement of individuals working under specified conditions have directly or indirectly contributed evidence to the effect that one's physical and mental abilities are inconstant in amount or degree, and are apparently not only sensitive to those external influences, such as temperature, light, and humidity, which may be felt as stimuli, but also affected by seasons and by the time of day. A brief summary of the important studies of this type is included in a recent volume[1] which presents similar data from the author's study of two groups of pupils in the Manual Training High School of Washington University during the school year 1910–11.

The discussion of variations in efficiency is organized under the four general headings of seasonal, diurnal, and other periodic variations, and weather influences. In each case there is presented a very brief summary and a critical evaluation of other studies relating to the topic, following which is the description of the tests and method employed in the author's own study.

While a large number of pupils took some of the tests, there were only ten who took the tests daily from October, 1910, to June, 1911. Another group of twenty-two pupils took the tests once each week during the same period. The physical test employed was one for strength of grip, the Smedley dynamometer being used. The mental test was for primary memory; a series of two-place numbers read by the instructor at the rate of one per second was to be reproduced by the student within fifteen seconds after the reading. At the time of each test, and as a part of the record for that test, the date, the time of day, and the character of the day were noted. Apparently, due care was exercised both in giving the tests and in recording the scores. In addition to the general tables of daily and weekly scores, the data are tabulated to show variations in the average achievements of each group by months and by weeks for the period of testing. Comparisons are also made between the variations in physical and in mental efficiency from month to month for the two groups. The text includes an analytical study of the tabular data, the inferences being, in the main, fairly drawn.

[1] ARCHIBALD G. PEAKS, *Periodic Variations in Efficiency.* Baltimore: Warwick & York, 1921. Pp. 95.

Among the conclusions arrived at as a result of the study, the author finds in the data assembled definite evidence of periodic variations both of the seasonal and of the diurnal type in mental as well as in physical energy. He summarizes his observations with reference to these types of changes in the following paragraphs from the chapter entitled "Summary and Suggestions."

> There are three distinct periods in the physical strength of growing boys in the course of a school year, a period of growth from September to about the middle of December, a period of depression from January to March, and a period of renewed growth from March to June.
>
> There are also three more-or-less distinct periods in mental energy during the school year, the curve of which tends to resemble the curve for physical periodicity in the same group of subjects; first, a favorable period from September to the end of the year, an unfavorable period from January to March, and a second favorable period from March to May.
>
> The depression in mental abilities seems to appear somewhat after the depression in physical strength, is much less noticeable, and does not last so long.
>
> The period of depression in mental and physical abilities comes at the beginning of winter, and while it shows many individual variations, it occurs in all subjects studied and lasts from three to six weeks. Adults and boys of low vitality tend to show it early in December. Young and growing boys show it any time between the first of December and the middle of January. In some subjects the effects are overcome by the middle of February, in others by March, but in special cases it sometimes lasts until May.
>
> There is a distinct diurnal course of efficiency shown in both the mental and physical tests. Both increase quickly through the forenoon, each shows a slight decrease around noon, and both come to a maximum in the afternoon. That for mental abilities culminates at 2 P.M., while that for physical abilities often comes later in the afternoon [pp. 91–92].

Numerous observations concerning weather effects and other causal factors are included, and suggestions offered relating to the need for further investigation of the problem.

An additional chapter is entitled "Critical Review of Experimental Methods in Investigating Periodicity." The content of the nine pages included does not, however, justify the chapter title, since little is presented more than specific statements tending to establish the validity of the procedure followed by the author himself. Even as a review of his own methods of investigation, the discussion can in no sense be called critical. It contributes materially to the value of the report of the author's own study in that many significant details relating to both materials and methods not described elsewhere are here fully stated. The objection raised is therefore not against the inclusion of this chapter as a part of the report—the study would be distinctly less complete and less valuable without it—but rather to the extravagant claim which its title implies.

Those interested in the phases of educational psychology of which the study treats will find its content valuable and suggestive because of the character

of the material assembled from other investigations, as well as for the data reported from the tests given by the author himself.

The preparation of test material.—A new series of diagnostic tests[1] for the fundamentals of first-year algebra differs in certain important features from the standardized scales now in use. The fundamentals for which these tests were constructed were determined by means of a questionnaire sent to college and secondary-school instructors. From the results of the tabulation, the four processes most frequently reported were selected for the tests designated as Series A. The fundamentals thus determined were (1) collection of terms, (2) multiplication, (3) division, and (4) solution of the simple equation.

In selecting test material the writer adapted certain problems from the better texts. These exercises involve different combinations of steps in each process and represent various degrees of difficulty, thus giving opportunity for diagnosis and at the same time for differentiation of degrees of ability. Mr. Douglass says that "it is in this arrangement that the tests under discussion have a distinct and important advantage over other tests for measuring algebraic ability or progress" (p. 13). An examination of the tests shows a greater variety of types of exercises than in those scales which he criticizes on this point, but it is apparent that one or two problems of a particular type are not a sufficient basis for a careful diagnosis. For example, the failure of a pupil on problem 4 of test 1, would not necessarily mean that he was weak in this particular type of subtraction. If he failed on several similar problems, the certainty of his weakness would be more apparent. The cycle principle of test design provides for this difficulty and if used in a modified form would improve these tests for diagnostic purposes.

The test material was arranged in approximate order of difficulty and given under time-limits which were thought sufficient except for the very slow pupils. From the results of about one thousand returns each problem was given a weighted value according to the proportion-of-pupils-solving method. Tentative standards and P. E. values for the problems were then obtained. Inspection of these P. E. values shows that they increase as the problems become more complex in each test, but that the differences are relatively slight. The fractional values, moreover, are very tedious to handle. Recent testing-results suggest that weights of this type are of doubtful value. For a fair-sized class the correlations between weighted scores and scores obtained by giving each problem the value 1 often run higher than .99. The argument that an individual score is more accurately obtained by weighted values is again open to question until the probable errors (as a measure of reliability) of such scores are obtained and comparisons made. The same considerations apply to the

[1] HARL ROY DOUGLASS, *The Derivation and Standardization of a Series of Diagnostic Tests for the Fundamentals of First Year Algebra.* "University of Oregon Publications," Vol. I, No. 8. Eugene, Oregon: University of Oregon Press, 1921. Pp. 48.

zero point which has a P. E. like any other value—in fact, the largest of all. It thus appears that the whole question of reliability is exceedingly important in this connection and will doubtless receive greater consideration as Mr. Douglass' excellent material is put into use.

KARL J. HOLZINGER

Recent compilations of word lists.—Despite the fact that a number of extensive studies have been made and various methods employed in the effort to determine word lists which might with some degree of certainty define the task of the schools so far as the individual's knowledge of words is concerned, there still remains a feeling that the best information which available lists afford may be modified by additional tabulations. Two recent studies have undertaken more clearly to indicate the utility of existing lists by supplementing these and by showing the relative importance of the words they contain.

One[1] of these studies has sought to determine the words commonly used by individuals in various callings. To this end, an analysis was made of 3,723 letters written by adults engaged in more than thirty-five different occupations and callings. These were classified into six principal groups, intending to distinguish "the range and frequency of words used by (1) those especially trained for the callings in which they are engaged, (2) those in semi-professional or semi-skilled, gainful occupations, which in general require no special preparation or training, (3) domestics and those not directly engaged in professional or gainful occupations" (p. 21). These classes are designated "professional, business, domestic, miscellaneous, personal, and farmers."

The total tabulations included 9,223 different words. Of these, it is noted, 14 constitute one-fourth of the total number of 361,184 running words included in the study, 77 comprise one-half, while 442 make up three-fourths of the total number. In selecting a final list which is assumed to represent the words commonly used by individuals of the six specified groups, all words were included that occurred in three or more groups with a frequency of at least five. The resulting list comprises 3,087 different words.

A comparison is drawn between this list and Pryor's list of 1,478 words described as a minimal list for pupils of Grades II–VIII. Thus, it is shown that of the words not found in the Pryor list, 207 occurred in each of four of these groups with a total frequency of 20 or more. Thirty words of the Pryor list, on the other hand, were not shown by this study to be of common use among the classes of individuals considered. The evidence, then, is that "neither of the two lists is complete, and that not all simple and familiar words are revealed by this method, even when a large amount of material is scored and

[1] WILLIAM NICLAUS ANDERSON, *Determination of a Spelling Vocabulary Based upon Written Correspondence.* "University of Iowa Studies in Education," Vol. II, No. 1. Iowa City: University of Iowa, 1921. Pp. 66.

tabulated." The author concludes, however, that this study indicates that there are some three thousand or more words which are so commonly used that an individual of average intelligence might well know them. But it is not to be inferred that these all need to be taught in formal spelling lessons. Rather, it is suggested, attention should be given to the mastery of these words in connection with all written school work.

A second list[1] presents the 10,000 most commonly used words in a "count of about 625,000 words from literature for children; about 3,000,000 words from the Bible and English classics; about 300,000 words from elementary-school textbooks; about 50,000 words from books about cooking, sewing, farming, the trades, and the like; about 90,000 words from the daily newspapers, and about 500,000 words from correspondence. Forty-one different sources were used" (p. iii).

Accompanying the list is a notation scheme, the numerals and letters of which indicate the relative importance of the words according to the findings of this study. These notations show both the number of different sources in which the word was found and the frequency of its occurrence in all the sources. In the case of the 5,000 most important words, an additional notation shows in which thousand and in which half thereof the word occurs. Within the first 500 words there is a further distinction into hundreds; so that the teacher can readily determine the probable importance of any word as compared with the others of this list.

Each of these reports recognizes the limitations of the study as made and warns against the use of the list presented as a formal spelling list for use in schools. Each, however, may be used to good effect by the teacher in constructing spelling lists or in determining the treatment that is probably most valid in the case of any special word about which there is doubt.

Junior-college mathematics.—The plan of presenting mathematics by arranging in a homogeneous manner the material traditionally given in separate courses and under separate names is now followed by a number of authors of textbooks. Courses in general, unified, or correlated mathematics are taking the places of courses in arithmetic, algebra, geometry, and trigonometry. There is a general agreement among junior high school texts that the pupils should be introduced to mathematics as a whole. In addition to arithmetic, a considerable amount of algebra and geometry is offered in these courses. For the senior high school several texts in general and correlated mathematics are available. In the junior college the tendency toward unifying mathematical subjects seems to be even more marked in the high school, and recently several texts prepared from this point of view have appeared.

[1] EDWARD L. THORNDIKE, *The Teacher's Word Book*. New York: Teachers College, Columbia University, 1921. Pp. vi+134.

The pioneer work in the field was done by Woods and Bailey who published a two-volume series[1] in 1907. The authors state that "in arranging the material the principles of each subject are introduced as needed and the subjects developed together. The objects are to give the student a better grasp of mathematics as a whole and of the interdepending of the various parts, and to accustom him to use in later applications the method best adapted to the problem in hand, thus leading to greater familiarity with methods and greater freedom and skill in their application."

Similar arguments in favor of unified courses for the junior college are found in the prefaces of several textbooks. They are of interest not only to college teachers but also to teachers of secondary-school mathematics. In one of these books[2] the statement is made that "it aims to unify the essential and vital features of the work commonly covered in the past in separate courses in college algebra, trigonometry, and analytic geometry. The fundamental idea of the development is to emphasize the fact that mathematics cannot be artificially divided into compartments with separate labels, as we have been in the habit of doing, and to show the essential unity and harmony and interplay between the two great fields into which mathematics may be properly divided, namely, analysis and geometry.

In the preface of another textbook[3] for junior-college classes we find the following:

> The best course in any subject, and especially in any mathematical subject, is the course that best prepares the student both in attainment and in attitude to go on to the next. When mathematical material from all branches is so organized that the things studied at each level of maturity are the materials best adapted to this stage that are available in any of the branches, the organization that best prepares for the next advance is the best organization, whether the student actually makes the advance or not.

In one of the general courses[4] the function idea is the unifying factor.

> The book presents a coherent year's work in mathematics for college freshmen, consisting of a study of elementary functions and their applications to problems arising in various fields of knowledge. The subject-matter includes the essentials of plane trigonometry and topics from advanced algebra, analytic geometry, and calculus. The unity of the course is gained by an explicit analysis of the functions studied which enables the student to comprehend the purpose of the course as a whole.

[1] FREDERICK S. WOODS and FREDERICK H. BAILEY, *A Course in Mathematics*. Boston: Ginn & Co., 1907. Pp. xii+385.

[2] LOUIS C. KARPINSKI, HARRY Y. BENEDICT, and JOHN W. CALHOUN, *Unified Mathematics*. New York: D. C. Heath & Co., 1918. Pp. viii+522.

[3] E. R. BRESLICH, *Correlated Mathematics for Junior Colleges*. Chicago: University of Chicago Press, 1919. Pp. viii+301.

[4] ARTHUR SULLIVAN GALE and CHARLES WILLIAM WATKEYS, *Elementary Functions*. New York: Henry Holt & Co., 1920. Pp. xx+436.

The author of one of the most recent textbooks[1] in junior-college mathematics has the following to say in favor of a unified course.

> Under the traditional plan of studying trigonometry, college algebra, analytic geometry, and calculus separately, a student can form no conception of the character and possibilities of modern mathematics, nor of the relation of its several branches as parts of a unified whole, until he has taken several successive courses. Nor can he early enough get the elementary working knowledge of mathematical analysis, including integral calculus, which is rapidly becoming indispensable for students of the natural and social sciences. Moreover, he must deal with complicated technique in each introductory course and must study topics apart from their uses in other subjects, thus missing their full significance and gaining little facility in drawing upon one subject for help in another. The unified course enables even those students who can take only one semester's work to get some idea of the differential and integral calculus, trigonometry, and logarithms.

E. R. BRESLICH

Reorganization of mathematics for the junior high school.—The junior high school recognizes as one of its problems the reorganization of the courses of the intermediate grades better to meet the needs of the adolescent period of child development. A suitable selection and organization of material for the mathematics courses of these grades are problems with which supervisory officers and specialists in the field of mathematics have long been concerned. The numerous texts which are appearing in this field are evidence of the widespread interest in improving the situation with respect to this subject. Book I of a recent series[2] of junior high school texts in mathematics presents the author's idea of the type of readjustment that needs to be made in the course for the seventh grade.

Although it is now generally recognized that the material for courses in the seventh grade should be new, as well as adapted to the type of thinking done by children at this stage of maturity, the author devotes the first forty-seven pages of the text to review of material previously studied. What the course really needs at this point is an attack upon new problem material, letting the need for review and drill-work grow out of the attempts to master the new problem situations that are presented. Such review material as needs to be provided in the text, then, may better be presented in a final chapter, or distributed at intervals throughout the book.

The most important part of the arithmetic work in the grades is the application of percentage. If this topic is taught as applied to business relations, then it should be taught as late as possible in the grades. Mr. Hart has postponed most of the business side of the study of percentage to a later

[1] F. L. GRIFFIN, *Introduction to Mathematical Analysis*. Boston: Houghton Mifflin Co., 1921. Pp. viii+512.

[2] WALTER W. HART, *Junior High School Mathematics. Book I*. Boston: D. C. Heath & Co., 1921. Pp. ix+226.

course, it being clear that the difficulty lies more with the mastery of the information concerning the situations in which the problems must appear than with the mathematics of solution. The aim in this text is to give only the simpler applications of business practice.

The author has broken entirely away from the traditional arithmetic course and has used about one-half of his book for intuitional geometry. This takes the place of the many abstract business applications and the more difficult mensuration. The tendency is manifestly in the right direction, though the criticism may be made of this text that it partakes a little too much of the nature of formal high-school geometry. In general, it may be said of the book that motivation in the subject-matter is very often lacking. Scale drawings are made use of to some extent, but these should be used in most geometrical situations as a method of solution. The definitions and rules are so worded that the pupils have a chance to complete the generalizations. The formula has been introduced and used in situations where it will help form a mode of thinking. There is evident also an attempt to get material that is interesting to children of this age, and at the same time to prepare the way for the additional courses in mathematics which some may take. The new geometric material is very much better organized than the old mensurational work, leaving the pupil with a richer content from the course and with generalizations that are worth while. The intuitional geometry gives training in observation, in the use of mechanical tools, and in modes of thinking.

BUTLER LAUGHLIN

CHICAGO NORMAL COLLEGE

Modern plays for high-school study.—The recent tendency to introduce high-school pupils to the classics through an acquaintance with types of modern literature which they find it easier to read and enjoy is creating a demand for collections of material suitable for use in classes which are conducted from this point of view. The selection by a teacher of English in a New York high school is offered in the form of a text[1] containing sufficient material for a unit course in the drama for high-school pupils. Besides being suitable for classroom study, the plays presented may be acted by the pupils as well as read.

The type of material which this author has found useful in her classes is such as brings the pupil in contact with ideas and language more nearly contemporary with his own than are characteristic of the earlier literary masterpieces. In utilizing the selections presented, the author feels that nothing is sacrificed of the understanding and appreciation of the classics which are conceded to be vital aims in high-school English instruction. The point of view from which this method of introducing the secondary-school student to the study of the drama is adapted is best expressed in the author's statement of her own observations.

[1] HELEN LOUISE COHEN, *One-Act Plays by Modern Authors*. New York: Harcourt, Brace & Co., 1921. Pp. lxi+342.

> Even though the greatest literature has the quality of universality, it has been almost invariably my experience that, only as one grows older, is one quite ready to appreciate this quality. When one is young, it is easier to enjoy literature written from a point of view nearer to one's own life and times. Reading good contemporary literature is likely also to pave the way for a deeper appreciation of the great masterpieces of all time [p. vii].

That the selections are representative of the distinctly modern tendency in play-writing is shown by the fact that each is a one-act play. While it is noted that some of them make use of classic stories and traditions, the style and the treatment are modern. An interesting account of the history of the one-act play and a discussion of its workmanship furnish the pupil with both motive and understanding sufficient to insure a pleasurable reading of the selections presented. To stimulate interest in, and to aid in the preparation for, student reproduction of the plays studied, the Introduction includes a discussion of present-day theaters with a special account of means of staging plays in the school theater.

The book will be of interest to teachers who may wish to make use of all or part of the selections in classwork. It will also appeal to persons of purely literary interest as a convenient collection of representative plays of contemporary dramatists of recognized standing.

Vitalizing the study of governmental machinery.—Although the formula "we learn by doing" usually receives hearty applause in all quarters, there is still ample opportunity for its introduction in many schoolrooms. Especially is this true of instruction in civics. A little volume[1] which teachers will find valuable as a guide in putting this formula into practice in the vitalizing of that phase of citizenship which relates to the workings of government has recently come from the press. This manual contains concrete suggestions for the dramatization of a town meeting, a trial, a city election, a session of a board of aldermen, a public hearing before a state legislative committee, a session of the lower house of a state legislature, the naturalization of an alien, and a national political convention. In connection with each exercise there is given a "story" which furnishes a brief explanation of the significance of the topic, instructions for carrying out the dramatization, lists of persons and properties needed, a detailed program of the demonstration, a diagram of the room together with model papers and documents when such are needed, and suggestions for the questions and speeches of the participants.

The selections are well chosen and the suggestions in general are adequate. The omission of the right of affirmation in giving evidence is an oversight, and the statement that the plaintiff's lawyer swears in the defendant and his witnesses (p. 21) is, of course, a blunder. On the whole, however, the book is worth while; it will fill an important gap in the literature on the teaching of civics.

HOWARD C. HILL

[1] GEORGE A. MCPHEETERS, GRACE J. A. CLEAVELAND, and STELLA W. JONES, *Citizenship Dramatized*. New York: Henry Holt & Co., 1921. Pp. vi+188.

Special problems of forging.—Textbooks on forging, particularly in the field of general forging, are plentiful. Besides, there are available, as in the case of other school subjects, a limited number of texts or manuals which aim to provide material for use in classes dealing with special types of forging problems. One recent text[1] of the latter type follows the plan of certain of the earlier publications in its general treatment of the subject of forging, but makes its application unusually definite and specific by selecting all of its problems from the point of view of the needs of the farm.

Approximately three-fourths of the book is allotted to the presentation of a collection of job sheets in which the various steps to be followed in making each piece are given in detail. Indeed, the steps are given in such detail that one is left with the impression that little opportunity is afforded the student to do any thinking on his own account.

On the whole, the problems are well selected and are quite representative of the jobs that one encounters on the average farm. The practical character of the problems selected makes the book of real value for use in schools which are to any considerable extent serving rural communities.

HARRY T. FULTZ

CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

BOYER, PHILIP ARTHUR. *The Adjustment of a School to Individual and Community Needs.* Philadelphia: University of Pennsylvania, 1920. Pp. 141.

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HERTZOG, WALTER SCOTT. *State Maintenance of Teachers in Training.* Baltimore: Warwick & York, 1921. Pp. 144.

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SMITH, E. EHRLICH. *Teaching Geography by Problems.* Garden City, New York: Doubleday, Page & Co., 1921. Pp. xx+306. $1.50.

[1] JOHN F. FRIESE, *Farm Blacksmithing.* Peoria, Illinois: Manual Arts Press, 1921. Pp. 92. $1.25.

WILSON-DORRETT, OLIVE B. *Language of Music.* Yonkers-on-Hudson, New York: World Book Co., 1921. Pp. xxiv+296. $2.40.

WOODWORTH, ROBERT S. *Psychology.* New York: Henry Holt & Co., 1921. Pp. x+580. $2.50.

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D'OOGE, BENJAMIN L. *Elements of Latin.* Boston: Ginn & Co., 1921. Pp. xiv+384+42.

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PACKER, PAUL C., and MOEHLMAN, ARTHUR B. *Standards of Growth in the Detroit Public Schools.* Ann Arbor: University of Michigan, 1921. Pp. 46.

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Bulletin No. 30, 1920—*State Laws Relating to Education.*

Secondary School Circular No. 8—*The Function Concept in Secondary School Mathematics.*

Report of Committee on Teaching Social Science in High Schools and Industrial Classes. "Monographs on Vocational Education," 1921 Series, No. 1. Vocational Education Association of the Middle West, L. W. Whalstrom, Secretary, 1711 Estes Avenue, Chicago. Pp. 30.

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ATWOOD, HARRY F. *Safeguarding American Ideals.* Chicago: Laird & Lee, 1921. Pp. 125.

FRAYSER, NANNIE LEE. *Followers of the Marked Trail.* New York: Abingdon Press, 1921. Pp. 72. $0.90.

HAYES, D. A. *The New Testament Epistles.* New York: Methodist Book Concern, 1921. Pp. 266. $2.50.

NEWMAN, HORATIO HACKETT. *Readings in Evolution, Genetics, and Eugenics.* Chicago: University of Chicago Press, 1921. Pp. xviii+523. $3.75.

SYPHERD, WILBUR OWEN. *The English Bible.* Newark, Delaware: The Craftsmen of Kells, 1921. Pp. vi+547. $3.00.

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WARNER, FRANK A. *Bobby Blake on the School Eleven.* Newark, New Jersey: Barse & Hopkins, 1921. Pp. 256. $1.00.